

Oct 13 1955 Ref 3

Public Utilities

FORTNIGHTLY



SALUTING THE CONVENTION OF THE AMERICAN GAS ASSOCIATION AND THE
PACIFIC COAST GAS ASSOCIATION, OCTOBER 17, 18 AND 19, LOS ANGELES, CALIFORNIA

The gas industry under federal and state
regulation progresses with wider application
and growing public appreciation

OCTOBER 13, 1955

An Open Letter of Appreciation to the Gas Industry

Sales of Servel, the Gas Refrigerator, are up—67% for the five months through August, and 111% over last year for the month of August alone. Final payment on our six million dollar loan was made—a full 30 days before due.

These achievements would not have been possible but for the splendid support of many Gas distributing utilities throughout the country. Gas and combination companies serving almost 40% of the nation's gas meters are energetically pressing local programs, in full cooperation with distributors and dealers on their lines, to stimulate gas refrigerator sales in the total market. Others are now planning to add their weight to this program.

To the great Gas Industry goes Servel's sincere thanks.

and Servel's Pledge for the Future

Servel's new goals are based on the mutual interest of our company and the Gas Industry. Never in our 29 years of serving the Gas Industry has a new and closer relationship between us been of such pressing necessity.

Servel's advanced new designs, performance efficiency, exclusive features, and an ultimate in quality, will lead to stronger customer choice of gas in refrigeration. And this demonstration of the unique advantages of gas will protect and improve your kitchen load.

Confidently, Servel is looking to the future with our traditional partner, the Gas Industry.



Louis Ruthenburg
Chairman of the Board

Lawrence C. Gengie
President

Servel

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Public Utilities

FORTNIGHTLY

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OCTOBER 13, 1955

NUMBER 8



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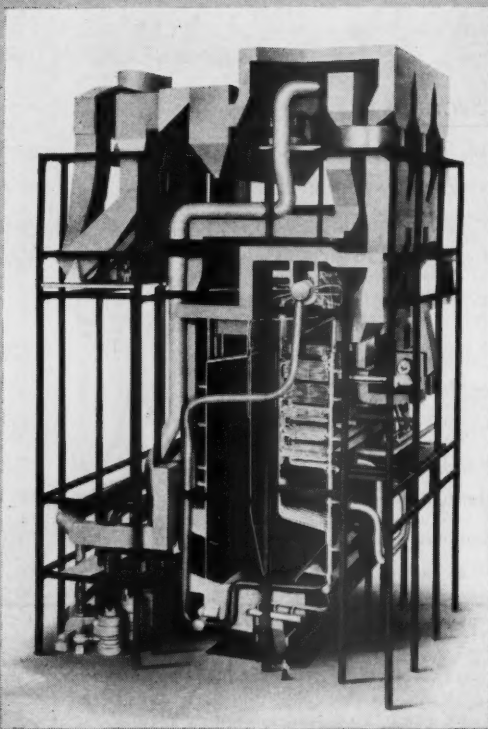
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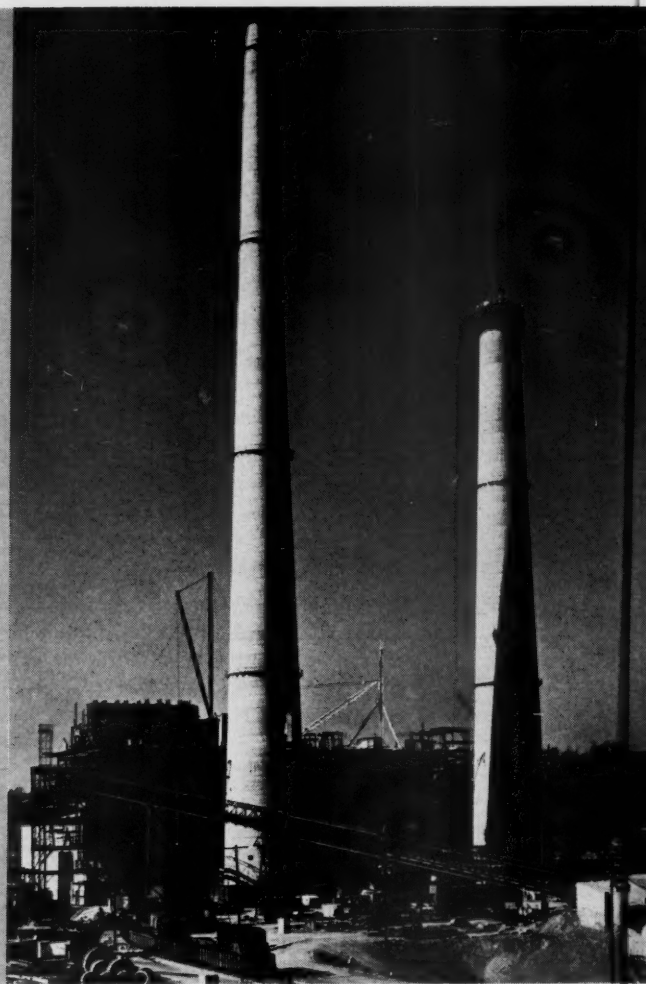
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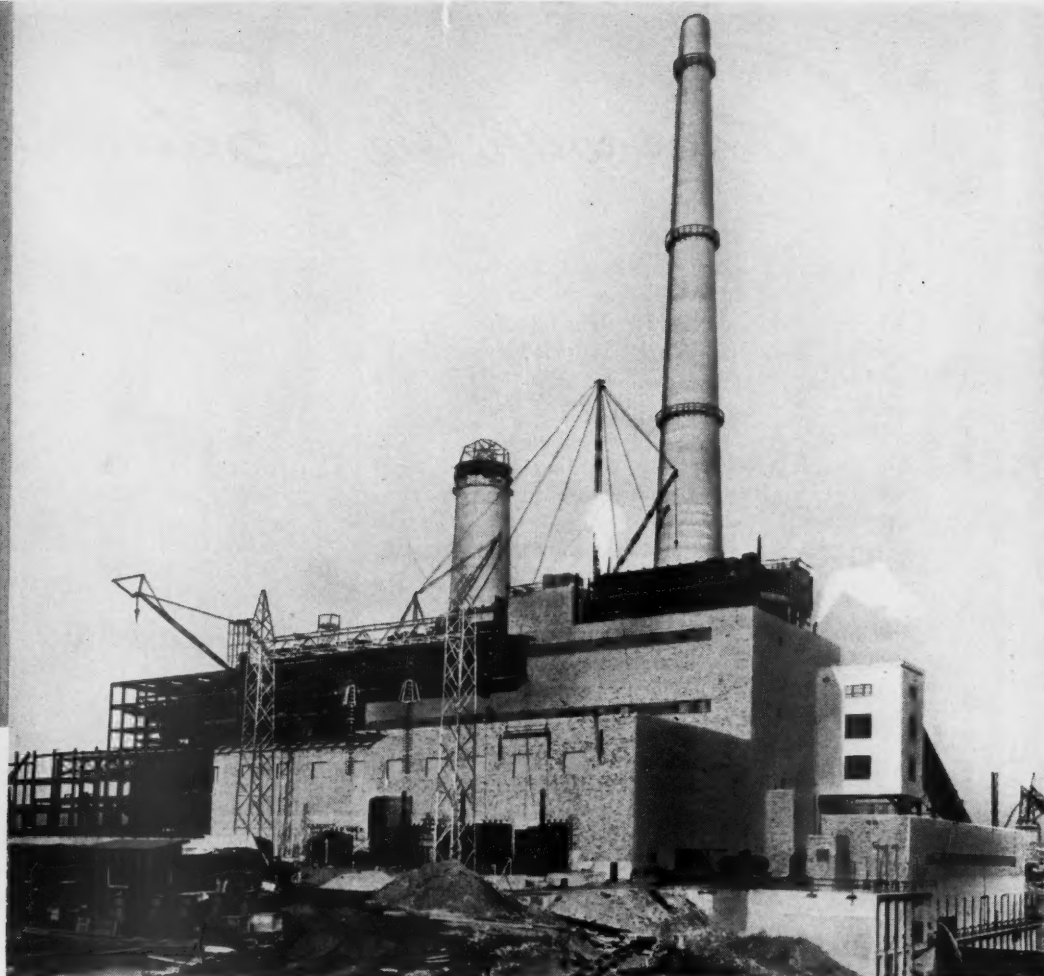


Clifty Creek Plant near Madison, Indiana, is scheduled for completion by the Spring of 1956. Unit No. 1 began delivering power in late January 1955. The Clifty Creek Plant will be owned, operated and maintained by IKEC. Its six units will have a total capacity of 1,200,000 kw—20 per cent larger than the Kyger Creek Plant. American Gas and Electric Service Corp. is the plant design engineer.

Once again America's private electric companies have demonstrated their resourcefulness. By combining their knowledge, skills and resources, 15 prominent utilities have accomplished a job of tremendous proportions quickly and efficiently—a job which would have been too big for any one company to handle.

By next year, two new power plants—now under construction as a result of cooperative planning by the 15 companies comprising Ohio Valley Electric Corp. and its subsidiary, Indiana-Kentucky Electric Corp.†—will be ready to supply more than the 15-billion kilowatt-hours of energy annually required for the process of uranium diffusion at the new Portsmouth Area Project. This huge block of power is greater than that used by New York City and is almost half as much electricity as is produced in all of France.

A number of factors relating to fuel, transportation and transmission were responsible for the choice of sites—both on the Ohio River—for the two power plants needed to meet this great demand. Now par-



Kyger Creek Plant—to be owned, operated and maintained by OVEC—will have five units with a total capacity of 1,000,000 kw. Unit No. 1 began delivering power in late January 1955, a full month ahead of schedule. The last unit is scheduled for completion by early 1956. Sargent & Lundy of Chicago is the design engineer.

tially completed, Kyger Creek and Clifty Creek plants will eventually have a combined capacity of 2,200,000 kw, and while Clifty Creek will be larger, the two plants will be similar.

Kyger Creek's five B&W Open-Pass Boilers will each produce 1,330,000 lb of steam per hr at 2000 psi and 1050 F, with reheat to 1050 F, and six B&W Boilers of the same type and size will furnish steam for kilowatts at Clifty Creek. The utilization of high temperatures, high pressures and reheat at both plants will place them among the most efficient and economical in operation. Together with a comparatively low fuel cost, this high efficiency rate will hold down the ultimate cost of the power produced there.

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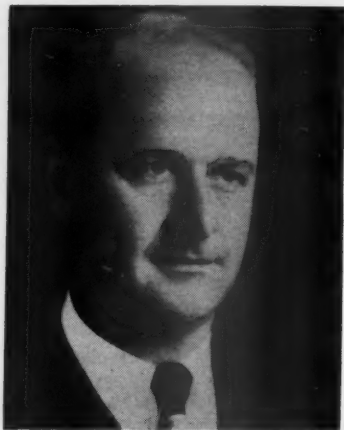


Pages with the Editors

WE have a double reason for saluting our good friends of the gas utility industry as they gather for their national meetings about the time this issue is being distributed. We refer, of course, to the thirty-seventh annual convention of the American Gas Association being held in Los Angeles October 17th to 19th, inclusive, and the joint convention of the Pacific Coast Gas Association, likewise being held in Los Angeles on the same days. Following our custom, we have endeavored in this issue to present material of special interest to the gas utility industry folks and others—regulators, legislators, and so forth—especially concerned with the gas industry's problems.

NEEDLESS to say, there is a good deal of special interest at this particular time in the natural gas industry in view of the controversial legislation introduced in Congress earlier this year, and still due for lively debate in the next session of Congress, concerning the general jurisdiction of the Federal Power Commission over independent gas producers and gatherers.

THE leading article in this issue comes to us from the president of the American Gas Association, F. M. BANKS, who is



F. M. BANKS



PAUL H. DOUGLAS

also president and general manager of the Southern California Gas Company. MR. BANKS is a native Californian. He was educated at Riverside (California) Junior College, Colorado School of Mines, and Massachusetts Institute of Technology. He joined the civil engineering department of his present organization in 1922, and after successive promotions became vice president in 1934, general manager in 1949, and president in 1950. He has been very active in the affairs of his industry, both national and regional.

* * * *

AS people generally will be interested in the forthright exposition of the so-called "consumer's" viewpoint on the pending gas legislation in Congress presented in the article (beginning on page 622) by U. S. SENATOR DOUGLAS (Democrat, Illinois). SENATOR DOUGLAS was born in Massachusetts and educated at Bowdoin (AB) and Columbia University (PhD, '21). He was a professor in the economics department of the University of Chicago and has written a great deal on the subject of political economy and social security legislation. He became president of the American Economic Association (1947) and was first elected to the Senate in 1948 and re-elected last year.



WELCOME TO LOS ANGELES

October 17, 18, 19

1955 ANNUAL CONVENTION

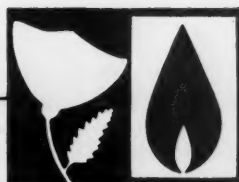
American Gas Association

Pacific Coast Gas Association

Southern California Gas Company

Southern Counties Gas Company

A.G.A.
P.C.G.A.



1955

PAGES WITH THE EDITORS (Continued)

He served with the First Marine Division during World War II, advancing through the ranks to Lieutenant Colonel (twice wounded and awarded the Bronze Star).

* * * *

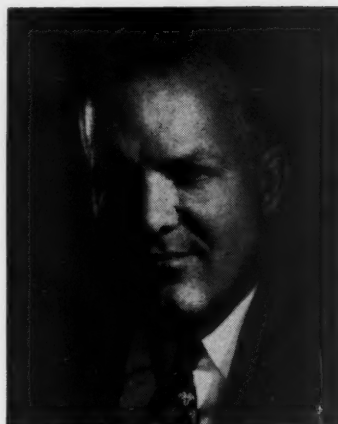
IN the heat of the controversy over political, legislative, and regulatory arguments involving the gas industry, we sometimes may be tempted to overlook the basic economics of America's most popular heating fuel. W. LARRY SHOMAKER, vice president of the Northern Natural Gas Company (in his article beginning on page 635), gives us a practical, down-to-earth explanation of why, when all is said and done, natural gas is still "the best buy." A native of Herrin, Illinois, and a graduate of the University of Wisconsin (PhB, '30), Mr. SHOMAKER has been with Northern Natural Gas for over twenty-five years in various departments. He became industrial engineer in 1938, superintendent of gas sales in 1944, and vice president in charge of public relations in 1950. He also has that responsibility in connection with rate matters and gas supply.

* * * *

THE natural gas industry, which already has converted most of the nation to the "wonder fuel" and has sold its way into a solid position as the nation's sixth largest industry, is setting new sales records through the development of new products and processes for home and industry. This is the story told (in the ar-



W. LARRY SHOMAKER



W. F. ROCKWELL, JR.

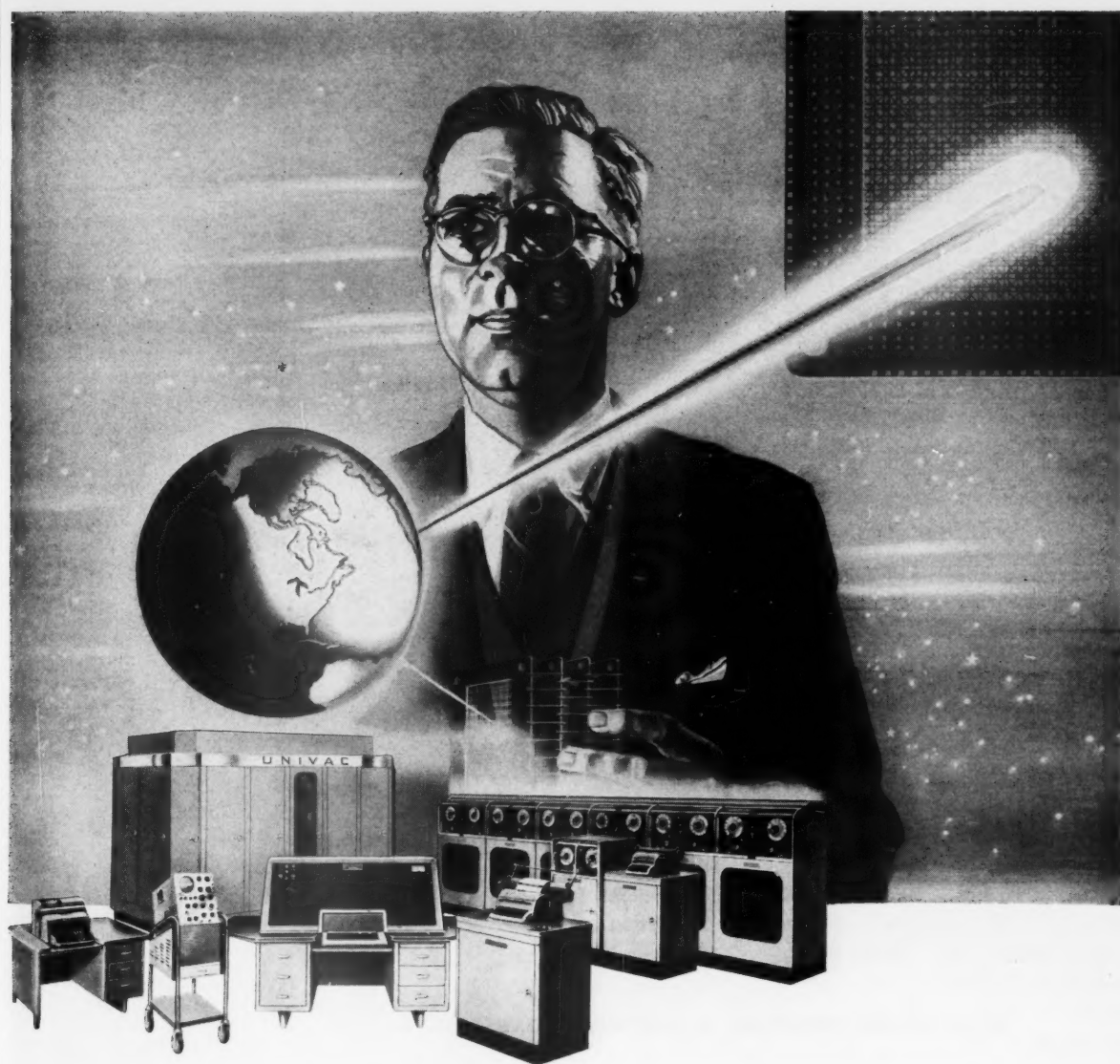
ticle beginning on page 642) by W. F. ROCKWELL, JR., president of the Rockwell Manufacturing Company and of the Gas Appliance Manufacturers Association. Mr. ROCKWELL is a graduate of Pennsylvania State College ('35), who came into the gas appliance business by way of the Pittsburgh Equitable Meter Company (later Rockwell Manufacturing Company, with which he has been connected since 1938). He has been president since 1947. His service with this organization was interrupted during the war years by a tour of duty with the U. S. Army, from which he was discharged with the rank of Captain in 1945. He is director of a number of Pennsylvania industrial concerns, mostly manufacturing and electronics.

* * * *

THE gas industry is going out after the gas air-conditioning load—a rich prize now largely held by the electric industry. It is coveted especially because of its summer seasonal balancing feature against high winter peaks which plague the gas utilities even more than the electric companies. In his article beginning on page 648, JAMES H. COLLINS, California author of business articles, has checked with current developments in this field.

THE next number of this magazine will be out October 27th.

The Editors



Doubling Univac's Speed!

The famous Remington Rand Univac® has widened even further its lead over other electronic business computing systems. Univac is still the *only* completely self-checked system...the only one which can read, write, and compute simultaneously without extra equipment. And now, the Univac II adds to these superior features the speed of a magnetic-core memory.

The Remington Rand magnetic-core

memory is more than a laboratory promise. It has been in actual customer use for over a year, passing all tests with flying colors in the first commercially available electronic computer to use core storage successfully.

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Univac's external memory—magnetic tape—now has greater capacity too, increasing input and output to 20,000 characters per second...the equivalent of reading or writing every character on this page more than 1,000 times a minute.

These new Univac developments can be incorporated into any existing installation to double its speed and to increase its economy still further.

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TVA SHOULD REMAIN UNDER THE CONTROL OF CONGRESS

The Chamber of Commerce of the United States is opposed to the enactment of the Kerr TVA bill now pending before Congress. This bill proposes a new arrangement for perpetuating and enlarging the TVA system. Merely changing the label does not alter the infirmity of placing local area responsibilities on the federal taxpayer. L. V. Sutton, president and chairman of the board of Carolina Power & Light Company, and a former member of the committee on natural resources of the Chamber of Commerce of the United States, who appeared as a spokesman for that organization before Congress, gives us a forthright statement on this proposal that TVA be permitted to issue its own revenue bonds in order to construct power facilities for which funds have been denied by Congress. The author, in stating these views, represented not only his own industry but the federation of 3,000 business organizations which comprise the Chamber of Commerce of the United States.

DO UTILITIES NEED ENGINEERED WORK STANDARDS?

Can practical engineered work standards be developed and applied? What problems are created in their application? How much are engineered work standards worth to a utility? These are broad questions, but enough practical experience has been gained in both gas and electric utilities to yield reliable answers. James W. Taylor, partner, Booz, Allen & Hamilton, explores the concept of engineered work standards and presents some conclusions resulting from several widely different applications in specific companies.

WHAT MAKES COMPANY PUBLIC RELATIONS TICK?

This article is based on a study and resulting report as to the organization, procedures, and practices of gas and electric utilities. It is essentially an exploratory analysis of the objectives, responsibilities, and mechanics of public relations programs, with a review of historical background of comparable practices in a representative cross section of these operating utilities. Henry Obermeyer, administrative vice president, Bozell & Jacobs, Inc., gives some answers to the questions, as well as some unanswered questions in this interesting account of what makes a public utility's public relations program "tick."



Also . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.

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Remarkable Remarks

"There never was in the world two opinions alike."

—MONTAIGNE

JAMES B. BLACK
*Chairman of the board, Pacific
Gas and Electric Company.*

*Excerpt from Clients' Service
Bulletin, published by The
American Appraisal Company.*

J. H. LOUDON
*General managing director, The
Royal Dutch Petroleum Company.*

L. M. CASSIDY
*Chairman of the board, Johns-
Manville Corporation.*

JOHN MCGILL KRUMM
Chaplain, Columbia University.

ROBERT E. WILSON
*Chairman of the board,
Standard Oil Company
(Indiana).*

"Government as a partner enlarges and strengthens the abilities of its citizens. Government as a remote and bureaucratic overseer can only weaken and subject its citizens to a demoralizing control."

"Our whole American system of free enterprise is built upon a succession of new ideas. The men who today create and gain acceptance for their new ideas are our business leaders of the future. They and their new ideas are, indeed, a formidable argument for all that is good and noble and rewarding in our American way of life."

"But even if we look ahead to the time when atomic power will be starting to play the great part for which it is destined, its rôle, as we see it today, will primarily be the production of low-cost electricity. While atomic power plants may displace a certain amount of heavy fuel, low-cost electricity spells increased productivity, which in turn will create greater demands for petroleum products."

"It is always true that there are things one cannot afford. But least of all can one afford to lose a war, or, in peacetime, to permit a depression. The sound and competent leaders of private enterprise must not fail to provide the type and size of economy that the American population will be demanding in 1965. There are too many unsound incompetents ready to offer to take over if they fail."

"May you see the dark moments ahead, as great opportunity for great decisions, as decisive hours when inner integrity and basic loyalties are sifted and tested. The urbane skepticism that one sometimes finds on a university campus is a luxury which the urgent choices of a testing time such as ours cannot permit. Men were made to be free and responsible . . . for discriminating living. This is not an idea our civilization takes very seriously."

"The best assurances of security as well as higher living standards for the industrial employee and his whole family rest in our continued economic growth and rising productivity as a whole nation. We must not jeopardize our successful system by loading it with burdens which might crush it—but neither should we assume that any new burden would be intolerable. While some reasonable unemployment compensation is justified, it is unthinkable that a man should be paid as much, or nearly as much, for not working as he is for working. Such guaranties would force businessmen to go slow on the bold planning and the risk taking that has been the driving power behind our industrial progress."



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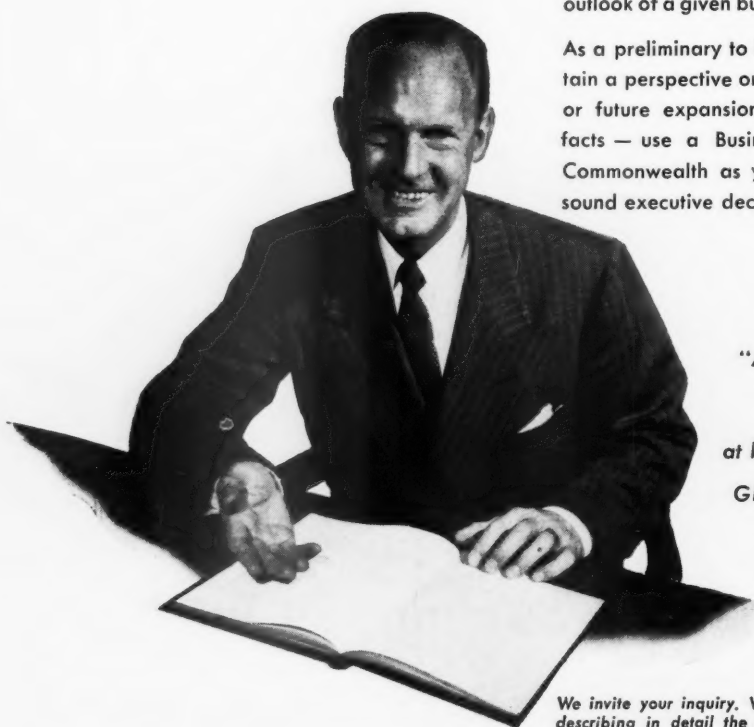
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With those words a high authority in a competing industry cites to his own group the prime cause for the ascendancy of our industry.

The promotional program of the gas industry has acquired a tempo and a scope which can well be the envy of any industry.

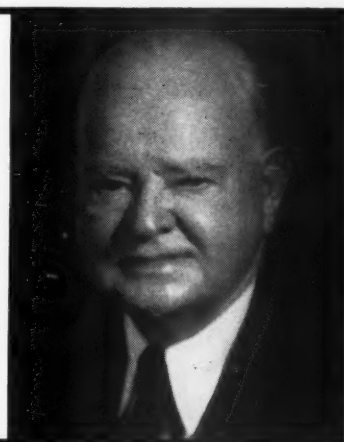
Spearheaded nationally by the American Gas Association, it is now actively participated in by not only appliance manufacturing, gas producing, and gas transmission companies, but also a host of miscellaneous suppliers.

Here is a demonstration of complete solidarity among diversified groups in a common interest. On the occasion of the 37th Annual A.G.A. meeting we salute the gas industry together with its far-seeing allies.

WASHINGTON MARKS A QUARTER-CENTURY OF NATURAL GAS

President Herbert Hoover, who signaled the introduction of natural gas in the Nation's Capital.

Chartered by Congress in 1848, the Washington Gas Light Company first used natural gas — for reforming and enriching — twenty-five years ago. Following complete conversion in 1946, this utility through a 10-year development program and constant local sales promotion is now proud to be among the leading straight natural gas companies of the country.



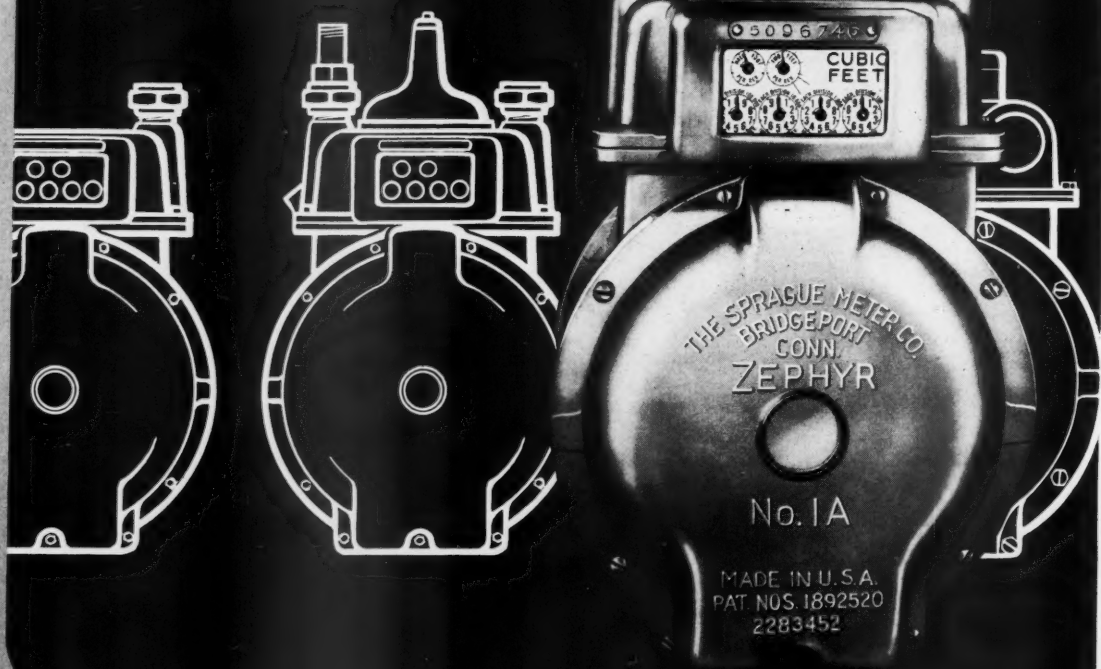
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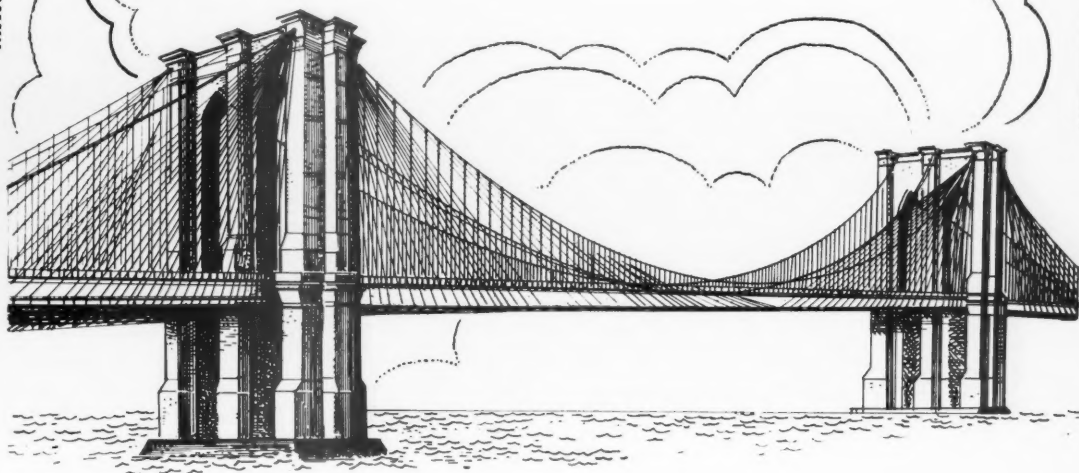
Over the Brooklyn Bridge...

Brooklyn Union is enjoying a fine year! With the continued growth in homes, business and industries in Brooklyn and Queens . . . with the sales of more and more automatic gas appliances, we've sold more gas than ever before. And on February 3 we had the highest daily send-out (161,908 MCF) in our over 105 years of history.

New markets are being developed too. The heavy sales of gas during the winter months are being balanced by the summer sale of firm gas for off-peak uses, by an attractive storage program, and by the sale of interruptible gas.

And our heating rates were reduced again, making gas cheaper than any other fuel! So *the big swing is to gas* as thousands more people are installing clean, economical gas heat.

Yes, Brooklyn Union—proud to be a part of such a growing and thriving community—is having a good year. And our goal, as always, is to provide the best possible gas service at the lowest possible cost to millions of people in Brooklyn and Queens.



The Brooklyn Union Gas Company

helping
the gas industry
plan for **new peaks ahead**



In addition to supplying an all-time peak demand—in the home and factory—America's gas companies are planning for the even greater capacity that will be needed tomorrow. In this planning, many gas companies have found that Ebasco can be of help. Ebasco's specialized services to the gas industry encompass every aspect of operation—from studies of present and potential markets, production planning, long range system planning, financing, rates, sales—right up through the design and construction of new facilities.

In its half-century of service to the gas industry, Ebasco has worked for clients on every phase of operations. For more information about our services, ask for "The Inside Story of Outside Help." Write: Ebasco Services, Incorporated, Dept. W, Two Rector Street, New York 6, N. Y.

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ACTUALS FROM POTENTIALS . . .

For many years, the energy-hungry cities and industries of the nation eyed the "potential" gas supplies of the mid-continent and Gulf Coast regions. But homes were heated, meals were cooked, and work was done with other and less satisfactory fuels.

At the same time, producers in the field looked anxiously toward the "potential" gas consumers in distant cities. Natural gas reserves were too great for field and local uses. Most reserves were idle—surplus—with little value.

Thus, millions of people wanted gas but could not buy it; thousands of people had gas to sell but could not move it to market.

The development of large-diameter, high-pressure pipelines filled the gap. The construction of these lines has made it possible for consumers to bid for supplies as needed and for producers to sell gas as new reserves are discovered. Pipelines have brought better living to consumers and greater opportunities to producers.

Pipelines have turned "potentials" into "actuals."

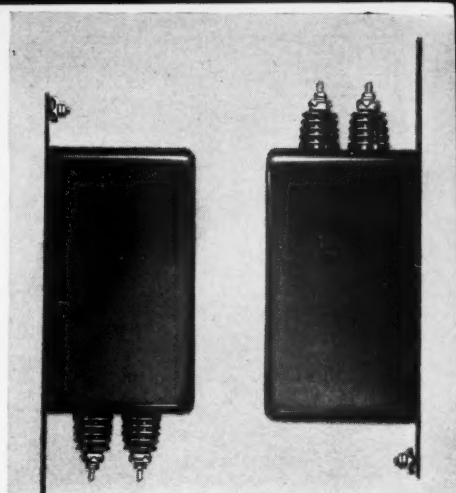
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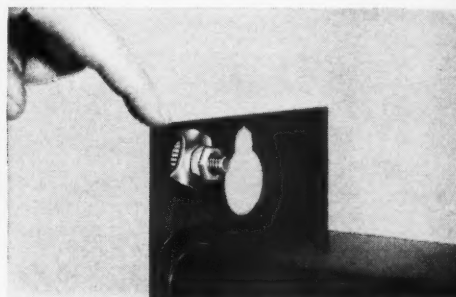
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MOUNT IN ANY POSITION, bushings up or down, on the pole or on the crossarm, terminals are readily accessible.



SEPARATE GROUND STUD, available on both the 3- and 5-kvar units, is easily reached, simplifies grounding connections.

General Electric 5-kvar, 240-volt residential secondary capacitor

**New unit provides more kvar at lower cost
to meet increasing demands of low power-factor residential loads**

Lower cost, improved voltage, reduced losses, and released capacity, can now be obtained with the new, G-E 5-kvar residential secondary capacitor. One 5-kvar unit can be substituted for two 3-kvar units in most cases, thus lowering the total installed cost per kvar.

The new 5-kvar unit can be mounted on the pole, on the crossarm or on brackets, with bushings up or down. A separate ground stud, on both the three and five kvar units simplifies grounding connections.

The new 5-kvar unit employs all-temperature Pyranol* dielectric. Synthetic rubber bird caps are supplied on the bushings. In addition, an insulated lead and a properly rated fuse-lead are shipped with each capacitor.

For more information on the new G-E 5-kvar residential secondary capacitor, contact your G-E Apparatus Sales Representative or write for Bulletin GEA-6186 to Section 441-11, General Electric Co., Schenectady 5, N. Y.

*Reg. trade-mark of General Electric Company.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



Buy a Dodge Truck and pocket the difference

Dodge pick-ups, stakes, panels cost up to \$188 less than other popular makes

Save first, and always, with a Dodge truck! New low prices bring famous Dodge dependability within the reach of every truck owner. What's more, Dodge work-proved long life and low operating costs mean extra savings over the years.

As for performance, Dodge offers you the greatest power line-up of any trucks on the road! Smooth-running Dodge Sixes are famous the world over for economy. New Dodge Power-Dome V-8's, with 169 to 202 hp., are the most advanced, most powerful engines in any leading trucks.

But see for yourself. Your dealer has a Dodge truck which will save you money and speed your work. See him today.

Models

Dodge saves you

½-TON PICK-UP.....	\$14 to \$ 94
½-TON PANEL	\$18 to \$123
¾-TON EXPRESS.....	\$18 to \$117
¾-TON STAKE.....	\$39 to \$137
1-TON EXPRESS.....	\$63 to \$157
1-TON STAKE.....	\$97 to \$188

DODGE

Job-Rated

TRUCKS

WITH THE FORWARD LOOK



PUBLIC UTILITIES FORTNIGHTLY—OCTOBER 13, 1955

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*Trademark

OCTOBER

FACTORS TO BE CONSIDERED IN SELECTION OF HIGH TEMPERATURE STEAM POWER PIPING

STEEL MANUFACTURE AND RAW MATERIALS PROCESSING FACTORS

MELTING AND CASTING
HOT WORKING
HEAT TREATMENT
INSPECTIONS
ACTUAL EXPERIENCE WITH
SPECIFIC COMPOSITION

FABRICATION FACTORS

HOT BENDING, FORGING
HEAT TREATMENT
WELDING
POST HEAT TREATMENT
MACHINING
INSPECTIONS
ACTUAL EXPERIENCE WITH
SPECIFIC COMPOSITION

SERVICE FACTORS

HIGH TEMPERATURE
LOAD CARRYING CAPACITY
(± 1000)
STABILITY WITH TIME
GENERAL

M. W. KELLOGG'S METALLURGICAL LABORATORY KEEPS PACE

As shown above, there are many factors—all increasingly important to steam-electric power plants—in selecting materials for tomorrow's main and reheat steam piping needs. Prepared by M. W. Kellogg's metallurgical laboratory, and reproduced here only in part, this chart indicates the extent to which Kellogg's metallurgical laboratory supports Kellogg's fabricating facilities in meeting the challenge of higher temperatures and pressures.

One recent Kellogg assignment, by a leading public utility, is the problem of selecting a super alloy for main steam piping to operate at 5500 psi and 1200 deg. F. A testimonial to the leadership and experience of the M. W. Kellogg metallurgical laboratory, this problem will include selection of special welding materials, welding techniques, and heat treating procedures.

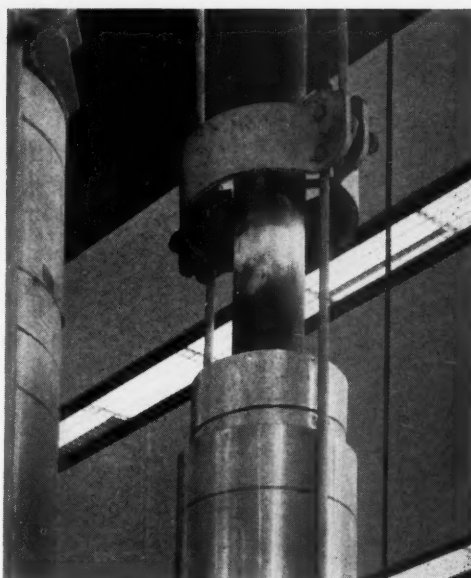
Working closely with power companies at every stage of such problems is the prime function of Kellogg's metallurgical laboratory, and is carried through to periodic inspection of the piping in service. We welcome the opportunity to acquaint you with these facilities.

FABRICATED PRODUCTS DIVISION

THE M. W. KELLOGG COMPANY, 225 BROADWAY, NEW YORK 7, N. Y.

The Canadian Kellogg Company, Ltd., Toronto • Kellogg International Corporation, London
SUBSIDIARIES OF FULMAN INCORPORATED

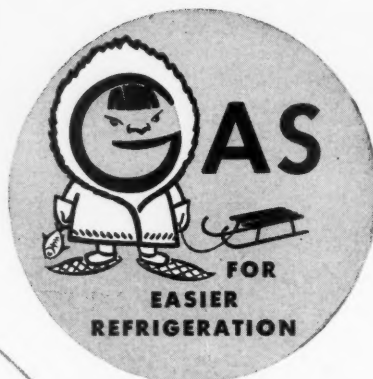
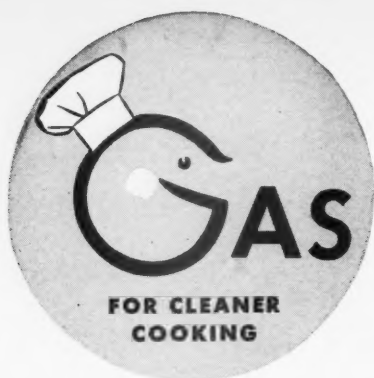
*Trademark of The M. W. Kellogg Company



The soundness of Kellogg's metallurgical studies prior to fabrication is evident from the condition of the welds on this stainless steel power piping when inspected recently. In service for 18 months at 2350 psi and 1100 deg. F., over 70 butt welds made with Kellogg's K-Weld* process were found to be in perfect condition. (Photo at power station, Kearny, N. J., courtesy Public Service Electric & Gas Co.)



POWER PIPING—THE VITAL LINK



© The Columbia Gas System

Columbia Gas System
delivers a modern miracle
24 Hours-A-Day!

CHARLESTON GROUP: United Fuel Gas Company, Atlantic Seaboard Corporation, Amere Gas Utilities Company, Virginia Gas Distribution Corporation, Big Marsh Oil Company, Central Kentucky Natural Gas Company; **COLUMBUS GROUP:** The Ohio Fuel Gas Company; **PITTSBURGH GROUP:** The Manufacturers Light and Heat Company, Binghamton Gas Works, Cumberland and Allegheny Gas Company, Home Gas Company, The Keystone Gas Company, Inc., Natural Gas Company of West Virginia; **OIL GROUP:** The Preston Oil Company.



Good Living and Business Go Hand-in-hand in GREATER MINNEAPOLIS!

Gas helps industry and home enjoy a comfortable sense of stability all year round. Consequently, a longer look forward, and a moving progressive attitude, are a regular part of the lives of business and the people in Greater Minneapolis. A prominent factor in good business and good living here is the supply of natural Gas for use in industry and home. Because Gas is economical and available, over 10,000 commercial and

industrial firms consumed over 25 billion cubic feet of Gas last year.

Whatever the need, for industry or home, Gas is ready to serve you in Greater Minneapolis.



Here good living comes in all seasons of the year. Fall hunting, winter skiing, spring gardening, bring on the beauty of the lakes and a roar of "Come on in . . ." in the good old summer time.

Backed by installations (like below) and the pipe-lines, Minneapolis is spreading out a giant web of Gas mains to pace the progress in this area. These facilities are ready to serve you.



MINNEAPOLIS GAS COMPANY

For more information, write to
Bert H. Roberts, Industrial Manager
MINNEAPOLIS GAS COMPANY
8th and Marquette
Minneapolis 2, Minnesota



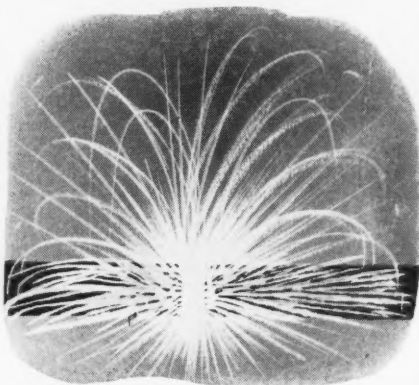
Here summer sailing and boating are practically at your back door. A place of pleasant and wholesome living, there is outdoor fun the year around in Greater Minneapolis.

Much of Minnesota's famous 10,000 lake country is only minutes away from the city. As a result, good living and business really do go hand-in-hand in Greater Minneapolis.



YOUR Special Advantage for OCTOBER

... this is the SPECIAL ADVANTAGE STICKER which dozens of companies are using this month on the front cover of Electrified Industry. →



SYSTEM POWER welds steel and crushes granite. Your machines can do hard jobs when backed by the tremendous power of

CONSUMERS POWER COMPANY

Pass to

.....

.....

THE SPECIAL ADVANTAGES of electric service include: . . Convenience . . . Flexibility . . Instant Starts . . . Economy . . . Reliability . . Cleanliness . . . Good Regulation . . . Ability to take Overloads . . . and the Cooperation and Advice on Electrical Problems which most power companies offer.

Customers are reminded of you and of the SPECIAL ADVANTAGES of being on your lines. In addition your stickers help them route your messages to additional readers.

Some companies make up stickers which carry their own slogan (a good idea). Others have Reddy Kilowatt remind the readers that electric power is their willing servant.

Power salesmen make friends for your companies and add to your "net divisible." Years ago they decided that they needed help to overcome the effects of the competitive power, diesel-and-steam, agin-the-utilities magazines that they saw on their customers desks. They helped create the picture magazine which tells the true story that electricity, properly used, is worth many times its cost.

They use this magazine to make 21¢ calls for them in between the \$5 and \$10 calls they make in person.

By using Electrified Industry they are able to maintain better-than-ever customer contact and increase the net revenue of the utilities.

ELECTRIFIED INDUSTRY and *Today's Business*

Martin Publications—20 No. Wacker Dr., Chicago 6

the picture keeps on
GROWING



Just 10 years ago, Indiana Gas & Water Co., Inc., was organized on this operating principle: good service is the best insurance there is for utility prosperity.

We feel this principle is sound . . . at least in our case. In this decade, our operating revenues have increased 269%. Dividends to stockholders are up 84%. Our customers have increased 58%.

At the close of our 10th year, Indiana Gas & Water Co., Inc., is serving approximately 96,000 natural gas customers in 59 Indiana communities, each with an economy based on an agricultural-industry diversity.

We are proud to have played a part in the growth of the GAS industry and sincerely wish a most successful 37th Annual Convention of the American Gas Association.



WE KEEP TELLING OUR CUSTOMERS...

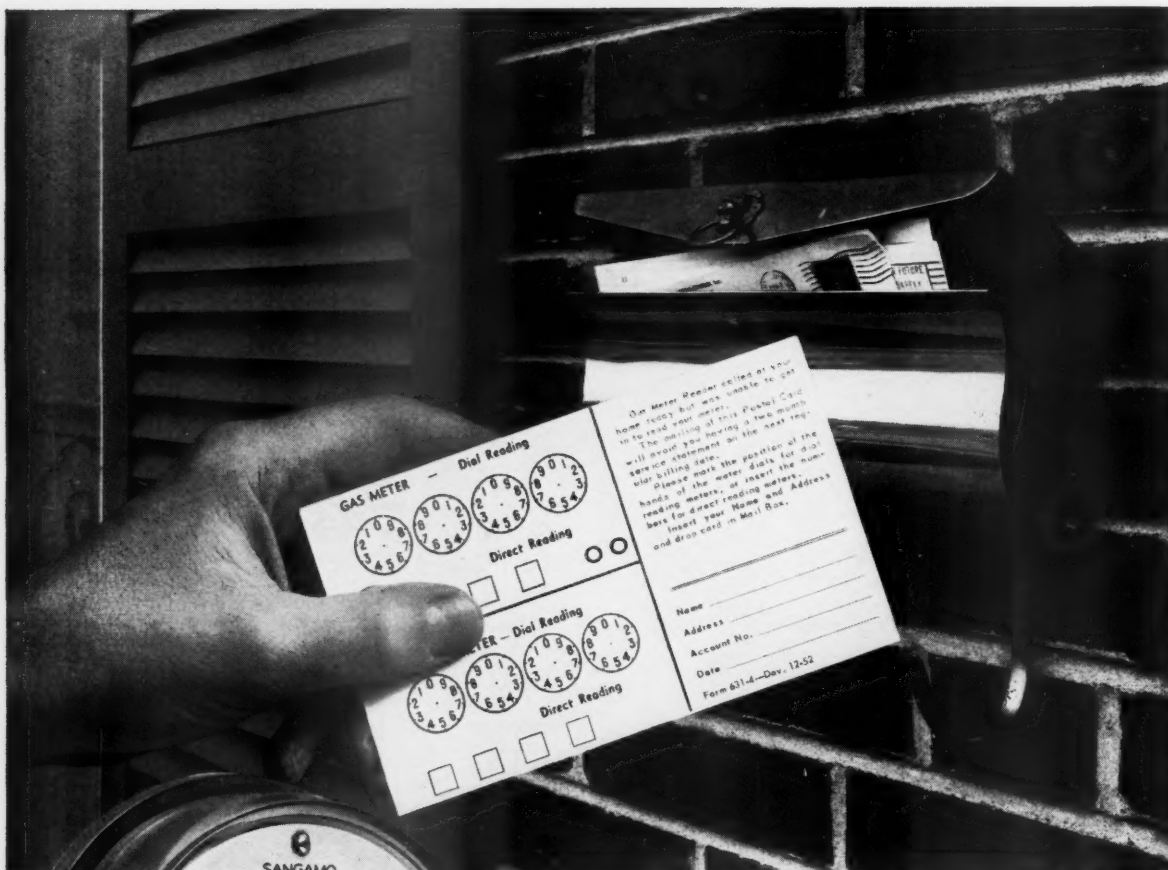
*It's Better... It's **GAS***



INDIANA GAS & WATER COMPANY, INC.

to save money in the billing department...

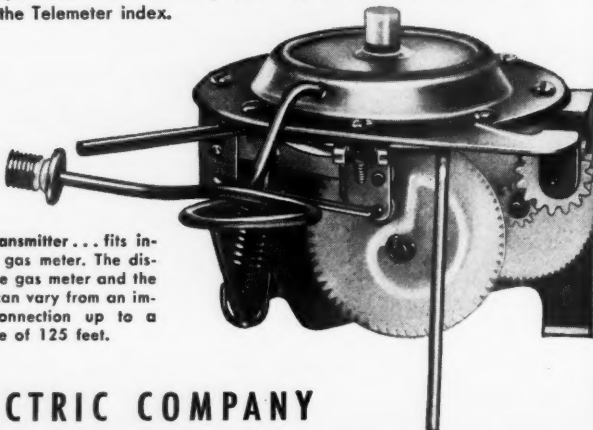
outdoor meter re



The Telemeter Index... fixed on the outside of the building. Sealing rings are made of stainless steel to prevent rust stains on the customer's premises.

Only two units

The Sangamo Gas Telemeter consists of two units... the Telemeter index and the Telemeter transmitter. They are connected by a copper tube which transmits pneumatic pressure from the transmitter to the Telemeter index.



The Telemeter Transmitter... fits inside the tin-type gas meter. The distance between the gas meter and the Telemeter index can vary from an immediate close connection up to a maximum distance of 125 feet.



SANGAMO ELECTRIC COMPANY

SPRINGFIELD, ILLINOIS

In Canada: Sangamo Company Limited, Leaside, Ontario

reading is the answer!

No estimated bills...no special trips for "skips" with the Sangamo Gas Telemeter

"Can't get in," writes the meterman after a customer's name.

Later of course, the meterman will have to get the *actual* reading. While the cost of re-reading habitual "skips" varies from place to place, the average is 75 cents per meter read. This figure represents only the actual cost of reading—it does not include the accounting cost of estimated bills and, in a sense, hand billing.

If your meterman could get his meter reading *outside* the customer's premises—it wouldn't make any difference if anyone were home or not. The reading would always be available to him. No longer would the billing department be faced with the extra expense and trouble of an estimated bill. No longer would it be necessary for the meterman to make costly special trips.

The Sangamo Gas Telemeter brings gas meter

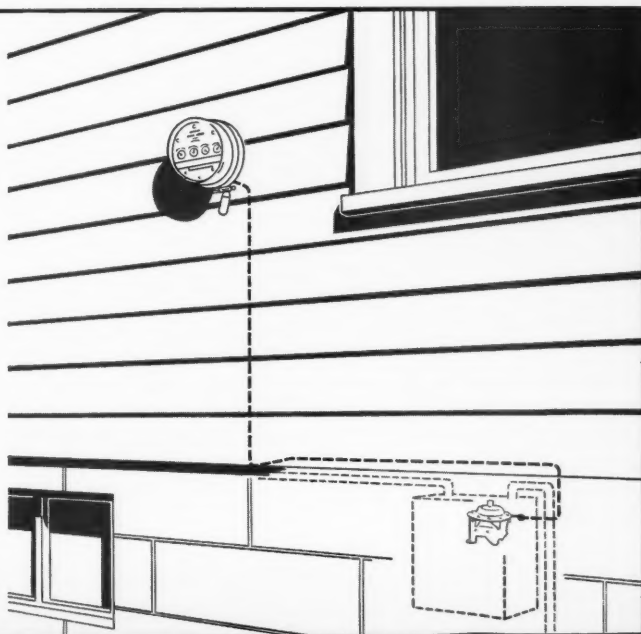
reading *outside*. It is an uncomplicated practical instrument consisting of a transmitter—and a Telemeter index which mounts on the outside wall of the customer's dwelling. Pneumatic pressure carried by a copper tube connecting the two units causes the exact reading of the regular inside meter to be registered on the outside Telemeter index.

Your meterman has time to read more meters in a working day. He is not subject to head-bumping, shin-scraping accidents frequently encountered in cluttered basements. Think of the savings in meter reading man-hours and time away from the job because of injuries.

We're sure you'll want to know more about the Sangamo Gas Telemeter than we can possibly tell you in this advertisement. That's why we've had a special Telemeter bulletin prepared (Bulletin 802). We urge you to write today for your copy.

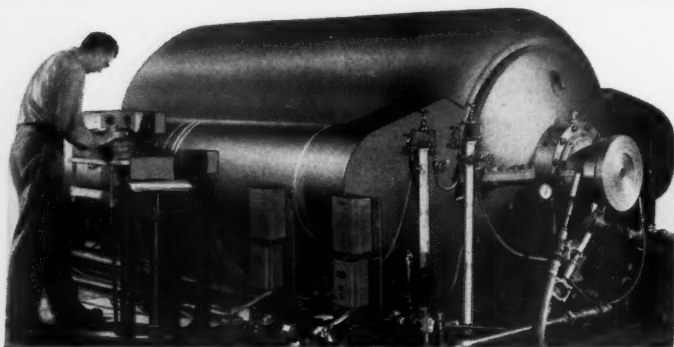
Simple installation requires only three steps...

Installation of the Sangamo Gas Telemeter is simple, requiring only three steps. First the transmitter element is mounted in the upper gallery chamber of the inside gas meter. Then the Telemeter index is attached to the outside of the customer's building. Connecting the copper tubing between the units completes the installation. Since the Sangamo Gas Telemeter has been built to meet the specifications of all gas meter manufacturers, the transmitter element may be mounted in new tin-type gas meters at the factory.

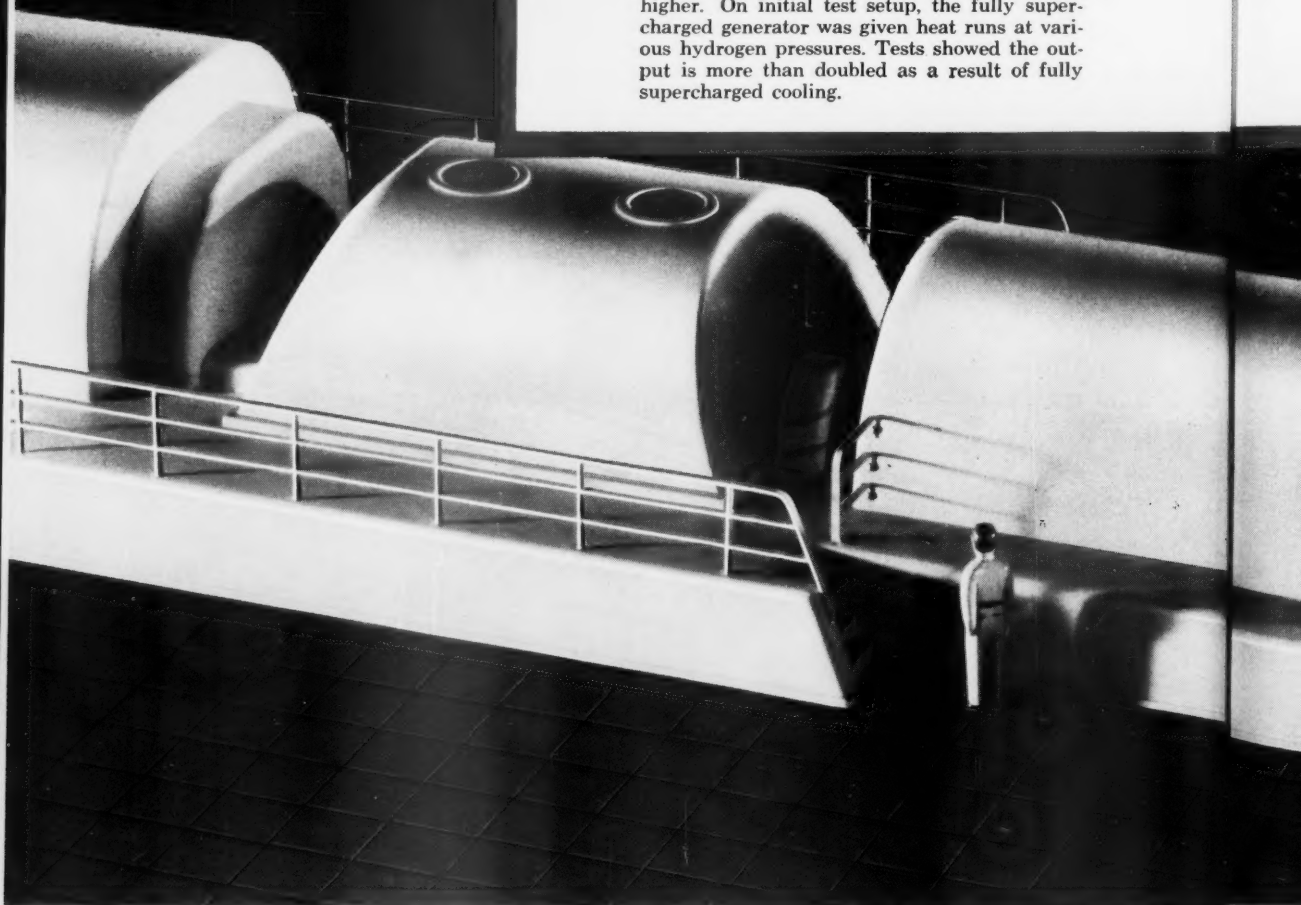


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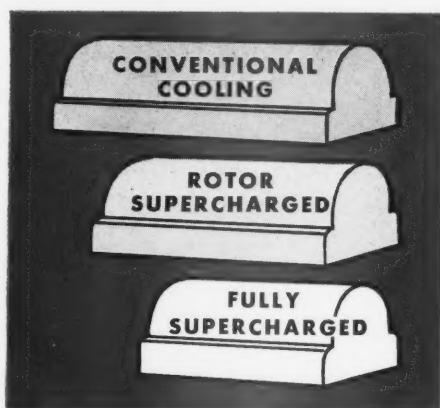
TEST UNIT establishes a basis for designing 3600-rpm units that can be rated 300 mw and higher. On initial test setup, the fully supercharged generator was given heat runs at various hydrogen pressures. Tests showed the output is more than doubled as a result of fully supercharged cooling.



Designers' model approximates appearance of fully supercharged generator on 150,000-kw steam turbine unit.

ALLIS-C

charged cooling



OUTLINES SHOW ADVANTAGES in comparable length . . . first with rotor supercharging . . . and now with full supercharging to reduce size even further.

Now

**Allis-Chalmers reports
on tests of a
generator with supercharged
cooling of both
rotor and stator**

EXPERIENCE shows that supercharged cooling pays off. The Allis-Chalmers pioneered development, applied to rotors only, already delivers important savings to utilities. Five steam turbine-generator installations now have a combined total of eight years' operating experience. Plants can be smaller, less costly to build. Switchgear costs are lower. Shipping and installation are simplified. Important operating advantages have been proved.

A fully supercharged generator test unit — with supercharged cooling applied to both rotor and stator — has now been built. It has mechanical, magnetic and cooling features which permit maximum utilization of Allis-Chalmers supercharged cooling design. This design provides conductor cooling with high velocity gas flowing over ample exposed area.

Performance surpassed expectations

Test efficiencies exceeded predictions and temperatures were favorable. Electrical characteristics were exceptionally favorable. Mechanical features, including thrust-type hydrogen seals, proved unusually effective.

Overall tests show that fully supercharged cooling — of both rotor and stator — will provide steam turbine generators with advantages in size and performance far superior to previously built designs.

Complete information on these tests is available in "Fully Supercharged Generator — Performance Exceeds Expectations." Get a copy from your nearby Allis-Chalmers office or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin.

A-4661

-CHALMERS



It's still Creosote for "Iron Clad" Wood Preservation

It has been estimated that the modern wood preserving industry, based primarily on the creosote treatment of wood, has saved the nation the equivalent of 500 million acres of forest lands in the past fifty years. And the outlook is even better for the future. Improvements and refinements in the basic creosoting process have rendered creosote treatment more effective than ever.

What part has the American Creosoting Company played in this picture? Amcreco was founded over fifty years ago by C. B. Lowry who also invented the first practical commercial method of creosote treatment. And since the day it was founded, the American Creosoting Company has been concerned with improving the quality of creosote treatment and building an organization that could offer the best of service to the public.

Today we have 23 treatment plants and 12 sales offices conveniently located for prompt domestic or export shipment. The next time you are in need of treated poles, cross arms, conduit and other construction timbers, we would appreciate the opportunity to quote on your needs.



AMERICAN CREOSOTING COMPANY

Shreveport Creosoting Company
Colonial Creosoting Company
Federal Creosoting Company
Indiana Creosoting Company



Georgia Forest Products Company
Gulf States Creosoting Company
Georgia Creosoting Company
Kettle River Company

LOUISVILLE 2, KENTUCKY

12 FIELD SALES OFFICES TO SERVE YOU



Courtesy, United Gas Corporation



Offshore Geophysical Exploration

A highly dramatic moment occurs when the seismic crew detonates an underwater dynamite charge, sending geyser-like plumes of water spray high into the air and generating shock waves that bounce back from deep in the earth to reveal possible oil- and gas-bearing structures beneath the sea.

UTILITIES

A.l.m.a.n.a.c.k

OCTOBER

<p>Thursday—13</p> <p><i>Oklahoma Utilities Association, Eastern Electric Light and Power Division, begins meeting, Okmulgee, Okla.</i></p>	<p>Friday—14</p> <p><i>National Society of Professional Engineers begins fall meeting, Memphis, Tenn.</i></p>	<p>Saturday—15</p> <p><i>National Association of Corrosion Engineers will hold northeast regional fall meeting, Niagara Falls, N. Y. Nov. 1-3. Advance notice.</i></p> 	<p>Sunday—16</p> <p><i>American Water Works Association, Southwest Section, begins annual meeting, San Antonio, Tex.</i></p>
<p>Monday—17</p> <p><i>American Gas Association and Pacific Coast Gas Association begin joint annual convention, Los Angeles, Cal.</i></p>	<p>Tuesday—18</p> <p><i>National Safety Congress and Exposition of National Safety Council begin, Chicago, Ill.</i></p>	<p>Wednesday—19</p> <p><i>American Water Works Association, Iowa Section, begins annual meeting, Des Moines, Iowa.</i></p>	<p>Thursday—20</p> <p><i>Virginia-West Virginia Independent Telephone Associations begin joint convention, Roanoke, Va.</i></p>
<p>Friday—21</p> <p><i>American Dietetic Association ends 4-day meeting, St. Louis, Mo.</i></p>	<p>Saturday—22</p> <p><i>American Society of Mechanical Engineers will hold diamond jubilee congress, Chicago, Ill. Nov. 13-18. Advancenotice.</i></p>	<p>Sunday—23</p> <p><i>American Petroleum Institute will hold meeting, San Francisco, Cal. Nov. 14-17. Advance notice.</i></p> 	<p>Monday—24</p> <p><i>National Association of Railroad and Utilities Commissioners begins annual convention, Asheville, N. C.</i></p>
<p>Tuesday—25</p> <p><i>New England Gas Association, Operating Division, begins meeting, Hartford, Conn.</i></p>	<p>Wednesday—26</p> <p><i>National Industrial Conference Board begins special atomic energy conference, New York, N. Y.</i></p>	<p>Thursday—27</p> <p><i>Pennsylvania Electric Association, Electrical Equipment Committee, begins fall meeting, New York, N. Y.</i></p>	<p>Friday—28</p> <p><i>Natural Gasoline Association of America begins southern regional meeting, Shreveport, La.</i></p>

Public Utilities

FORTNIGHTLY

VOL. 56, No. 8



OCTOBER 13, 1955

Optimism Is the Gas Industry's Keynote

The gas industry is quite optimistic about its ability to serve most efficiently the growing number of customers. More than that, the industry is preparing an aggressive program of promotion for new business and expansion of old business in various appliances and service fields.

By F. M. BANKS*

PRESIDENT, AMERICAN GAS ASSOCIATION

THE gas industry faces a most optimistic future, both from the long-range viewpoint and in the light of its immediate prospects.

I believe that most of the news and statistical information included in the many fine articles in this convention issue of the *FORTNIGHTLY* will bear me out in my firm conviction that, to borrow an old

political slogan, "We never had it so good." And lest I be held guilty of wearing too-thick lenses in my rose-colored glasses, I would like to quote a few statistics to support my own optimism, both as a president of a fair-sized gas utility company and as the president of the American Gas Association.

During 1955 the gas industry has made many significant advances. On the basis of reports for the first six months, the

*Also president of the Southern California Gas Company. For additional personal note, see "Pages with the Editors."

PUBLIC UTILITIES FORTNIGHTLY

current year should see the industry again achieving new records in sales, revenues, and numbers of customers served. Total sales of gas are running about 8.4 per cent ahead of a year ago and may reach a record 66 billion therms for this year.

The gas industry continues to add more than 800,000 new customers each year to its utility lines and the total being served by the gas utilities at the end of 1955 should be near the 29,000,000 mark. Total revenues of the gas industry for the current year will fall only a little short of \$3.5 billion, or about 12.5 per cent ahead of 1954 revenues.

A SUBSTANTIAL portion of these increases for 1955 is being achieved in the residential gas sales field, reflecting satisfactory gains in practically all of the seven domestic gas services. Measured by advances made in sales of gas appliances, the progress the gas utility industry is making to maintain and increase its position of leadership in the domestic field becomes more apparent.

For example, in the first six months of 1955, the sale of domestic gas ranges totaled about 1,096,000 units, up nearly 11 per cent over the comparable period of 1954. Some of the heaviest promotional effort on gas ranges, including special campaigns such as the Old Stove Roundup and similar events, usually comes in the fall. With anything like the rate of gain in the first half-year in effect, unit sales of gas ranges for 1955 should approach the 2,250,000 mark. Last year's sales of gas ranges were estimated at about 2,023,000 units.

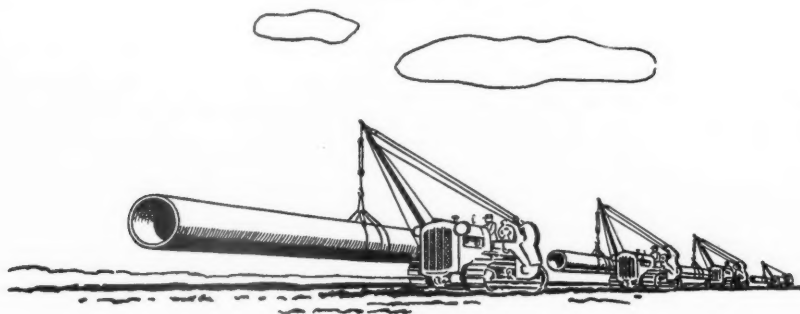
Sales of automatic gas water heaters in the first six months also show an impressive gain, totaling 1,394,000 units,

about 23.3 per cent ahead of comparable 1954 sales. On this basis for the full year sales of automatic gas water heaters should be very well above the 2,500,000 unit mark, as compared with 2,281,000 units sold in 1954.

GAS house heating is another field of domestic service in which our industry continues to make substantial advances. Surveys of the gas utility companies made by AGA indicate that approximately 1,200,000 new gas house-heating customers will be added to utility mains in each of the next two heating seasons. A total of 353,200 warm air furnaces were sold in the first six months of this year, an increase of 40.3 per cent over a year ago. An additional 30,400 gas-fired boilers were sold, marking a gain of about 7.5 per cent in this field. With other types of space-heating equipment for central heating being added, it seems reasonable to expect that at least a million central heating units will be sold for gas heating this year.

Sales of automatic gas clothes dryers totaled 135,800 units in the first six months of 1955, a gain of 65 per cent over 1954. Specific figures of the other major domestic gas uses are not yet available, but there is good reason to believe that gas incinerators and gas refrigerators have shared in the increases made by the other gas-fired appliances.

Gas air conditioning, the seventh domestic gas service, has benefited greatly through intensified research and sales efforts on the part of AGA, the gas utilities, and by the manufacturers of gas air-conditioning equipment. Recognizing the importance of this profitable, off-peak load, AGA has sponsored active research



The Growth of Gas Customers

"THE gas industry continues to add more than 800,000 new customers each year to its utility lines and the total being served by the gas utilities at the end of 1955 should be near the 29,000,000 mark. Total revenues of the gas industry for the current year will fall only a little short of \$3.5 billion, or about 12.5 per cent ahead of 1954 revenues."

work directed at the development of new approaches and toward improving present types of gas air conditioning.

Gains in utilization of gas are not confined to the residential field. Some important increases are being registered in sales and customers in the industrial and commercial sales branches. Promotional activities in this field, particularly in the area of commercial gas sales, have brought most satisfactory results.

There are many other tangible facts to support the present optimism of the gas industry and to encourage a continued belief in a favorable outlook.

CONSTRUCTION expenditures of the gas utility and pipeline industry in 1954 totaled \$1,055,000,000 and estimates indicate the industry will spend approximately \$1,385,000,000 for new construction and expansion of present facilities during

1955. For the four years from 1955 through 1958, it is estimated that a total of \$4,315,000,000 will be spent on construction. The 1951-54 period, in which the gas industry spent about \$4,933,000,000, was the record to date. Since construction estimates given by utility and pipeline companies are on the conservative side, new construction in the next four years may not lag too far behind the present record of nearly \$5 billion.

New miles of main added to the nation's network of pipelines and utility distribution systems reached a new peak of 24,110 miles in 1954. Of this amount, 2,320 miles represented field and gathering lines, and 8,650 miles were for increased transmission facilities. About 13,140 miles of new distribution mains were laid last year. At the year end the gas industry's pipeline network totaled about 470,000 miles.

PUBLIC UTILITIES FORTNIGHTLY

With the ever-increasing number of gas customers, and with such important transmission lines as the Pacific Northwest and the American Louisiana getting well under way this year, it would seem probable that the 1955 pipeline gain should equal that of 1954.

The increase in estimated construction expenditures would seem to bear out this forecast, since about \$1,284,000,000 of the proposed 1955 construction expenditures will be allocated to natural gas facilities.

THE industry is most optimistic about its ability to continue to serve most efficiently its growing number of customers. The American Gas Association's committee on natural gas reserves estimated that on December 31, 1954, the total proved recoverable reserves of natural gas in the United States amounted to 211.7 trillion cubic feet. A gain of about 263.6 billion cubic feet over the previous year and this gain was made in the face of a record production of 9.4 trillion cubic feet of natural gas during 1954.

As readers of PUBLIC UTILITIES FORTNIGHTLY know, these estimates include only those reserves in proven fields known to be economically recoverable under present production practices. Reliable estimates by experts in the petroleum field place future supplies of natural gas in the United States substantially in excess of 500 trillion cubic feet.

The increased utilization of depleted oil and gas wells and the pioneering use of other geological formations for the underground storage of gas are adding tremendously to the efficiency of gas services. At the end of 1954 there were 172 underground storage pools, comprised of

about 6,395 wells, with a total estimated capacity of 1,859 billion cubic feet of gas in operation in the United States. At the maximum period during the year more than one trillion cubic feet of gas were in storage.

ANOTHER fundamental source for optimism for the future outlook of the gas industry has been the continuing support for more than a decade of the gas utilities and pipelines in the industry's coordinated Promotion, Advertising, and Research (PAR) Program.

It now seems evident that the industry will achieve its goal for 1955, which was set at \$2,300,000 for these activities to be subscribed by the gas utilities, with an additional \$300,000 for pipeline research. In addition, the member companies were given the opportunity of subscribing additional funds to finance a public information program on behalf of the entire industry.

Approximately \$1,232,000 will be spent this year by AGA from the PAR funds for promotional and advertising activities. These funds have been greatly augmented by expenditures of individual companies and by appliance manufacturers. It is estimated that AGA's co-operative work with appliance manufacturers has resulted in about \$1,000,000 of additional national advertising on the part of appliance and equipment manufacturers.

Over \$1,000,000 has been devoted to utility research, with more than 50 separate research projects covering a wide range of fields varying from the production of substitute gases to the development of new appliance principles. Out of these research projects have come advances such as the nickel burner, the hypo-

OPTIMISM IS THE GAS INDUSTRY'S KEYNOTE

dermic pilot, the muffle oven, and other gas range improvements. Other gas appliances are being researched seeking similar developments to improve our domestic gas services. As I mentioned earlier, some \$200,000 is being devoted to air-conditioning research, with manufacturers spending additional hundreds of thousands of dollars of their own money on such research.

Again the industry has signified its faith in the importance and necessity of promotion, advertising, and research and has set a goal of \$2,500,000 for its PAR budget for 1956.

IMPORTANT steps have been taken in the field of public relations in this past year. The AGA Public Information Bureau has launched an effective program which interprets the gas industry's operations in terms of service by the local company to its local community. Workshops and conferences have been held in several regions in conjunction with other segments of the industry and with the regional associations where regional as well as national problems were discussed.

How to do it manuals, community and company relations material, and institutional advertisements have been prepared for company use. Safety kits and speakers' kits are in preparation. Plans for 1956 include additional co-ordinated programs with the Independent Natural Gas Association of America, the Gas Appliance Manufacturers Association, and the L. P. Gas Council, as well as with the regional gas associations, in a concerted effort to keep the story of gas before the public.

The industry has made great advances in the field of safety, both as concerns

safety in the home and public safety. Through the continuous efforts of the American Gas Association's laboratories in Cleveland and Los Angeles, in its testing programs for gas appliances, and the recent adoption by the American Standards Association of a new Code Z 21.30 covering installation of gas piping and gas appliances, gas customers have added assurance of home safety. According to the last available figures, during the decade from 1944-53, accidental poisonings by utility gas in the home have been reduced by more than one-half and the downward rate is continuing. This is all the more remarkable because the number of gas customers has increased nearly 35 per cent in that period.

Earlier this year, the American Standards Association also approved a revised § 8 on Gas Transmission and Distribution Piping, ASA B 31.1, which establishes safe standards in the design, fabrication, and installation of gas distribution and gas transmission systems. The revised code covers, in adequate manner, safety aspects of inspection, operation, and maintenance of pipelines, for the benefit of the public as well as the safety of employees.

I KNOW other contributors will adequately cover other phases of the gas industry in this issue. At the annual convention in Los Angeles and at the financial forum which preceded it, many problems facing the industry have been discussed. I have presented some of the reasons why I know these problems can be solved and why I believe so sincerely in the optimistic future ahead for the gas industry.



Federal Regulation of Independent Natural Gas Producers Is Essential

The author was among the first to speak out in opposition to the proposed legislation by his congressional colleagues from the southwestern states to exempt independent gas producers from the general jurisdiction of the FPC. Senator Douglas has since become the focal point of the so-called "consumers' bloc" and the exposition of his viewpoint in this article is worthy of careful consideration by gas utilities, as well as producers and carriers.

BY THE HONORABLE PAUL H. DOUGLAS*
U. S. SENATOR FROM ILLINOIS

THE United States Senate will have before it in January the Fulbright Bill to exempt sales of natural gas for resale in interstate commerce by the so-called independent nontransporting producers from regulation by the Federal Power Commission. The bill would also provide large windfall profits to interstate pipeline companies owning natural gas reserves. I have opposed similar legislation in the past. And I am opposed to this bill and its counterpart, the Harris Bill, which passed the House of Representatives by a very narrow margin at the end of the first session of the 84th Congress.

*For additional personal note, see "Pages with the Editors."

OCTOBER 13, 1955

I.

HISTORICALLY, the legislative efforts to win exemption for these producers' sales and to provide bonanzas for pipeline companies began with the Moore-Rizley Bill in 1947-48. This bill was too extreme even for the Republican 80th Congress. It was shelved. An exemption measure (the Kerr Bill) was unfortunately passed in 1950, but President Truman courageously vetoed it.

A majority of the Federal Power Commission in 1951 held in the Phillips Petroleum Company Case that the commission did not possess jurisdiction over sales of natural gas in interstate commerce which

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were related to the activities of production and gathering.

The Supreme Court in 1954 reversed this self-denial of jurisdiction. The court held that the Natural Gas Act gave the commission power to regulate the interstate sales of producers and indicated that it should get on with the job of protecting the consuming public against exploitation at the hands of natural gas companies. Now the oil and gas producers are back again seeking "clarification" of the Natural Gas Act or—more precisely—"exemption" therefrom.

At the present time, then, the Federal Power Commission has the legal power to regulate the rates charged for natural gas sold in interstate commerce for resale at all points in its interstate journey, commencing at the wellhead. The various state regulatory commissions have the authority to regulate the sales to ultimate consumers. The regulatory scheme is complete, and no regulatory gap exists.

The effect of the Fulbright Bill would be to reopen the gap and permit producers to charge all that the traffic will bear for this much-sought-after fuel. Whatever is charged would be passed along by the pipeline companies and the distributing utilities, and included as a legitimate cost in determining the final price to consumers.

I OPPOSE this legislation because it would exempt from federal regulation a vital segment of an industry engaged in interstate commerce which is affected with a public interest just as much as electricity, water, public transportation, or the telephone industry. This fact was established legally by Congress in 1938. The decisions of the Supreme Court have confirmed it.

Basically, however, it was neither Con-

gress nor the Supreme Court which made the industry one affected with a public interest and therefore subject to reasonable regulation. This is due instead to the fundamental nature of the industry itself. An examination of the industry structure and its business methods and operations led me, and many of my colleagues, to the view that continued regulation by the Federal Power Commission of the type of sales covered by the Phillips decision is clearly in the public interest.

Natural gas is a necessity in the daily lives of millions of Americans just the same as electricity, telephones, and water. These services are furnished by utilities. If a householder needs such services, there is only one place where they may be obtained on a practical or economical basis, and that is from the local utilities. In the economic sense, these householders are captive customers of the utilities.

IT is true that there are alternatives. Candles and oil lamps may be used for light in place of electricity. Water may be bought in bottles, or one can dig one's own private well. However, the investment made by the American consumer in appliances negates the opportunity afforded by such alternatives. Once the consumer has purchased a gas furnace, gas range, gas water heater, gas refrigerator, or gas clothes dryer, or other gas-burning appliance, he has no real alternative to gas as fuel.

Americans have now invested upwards of \$10 billion in gas furnaces and appliances which cannot be economically or physically "converted" to electricity, coal, oil, or wood. Even if the conversion were practical, few consumers would shift because gas is cleaner, more convenient, and

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its utilization requires little physical labor. But the conversion is impractical: The costs would be prohibitive for the consumer to "junk" his existing gas-burning equipment and replace it by electric appliances or by coal- or oil-burning furnaces.

The argument that the residential consumer has an effective alternative to the continued use of natural gas and can switch to another fuel if he objects to high gas rates is pure sophistry.

II.

A PHENOMENAL increase in the prices of natural gas in the producing fields has taken place since the close of World War II, and, more particularly, in the last two or three years. This rising cost of gas in the field has had a pronounced effect upon the rates of the interstate pipeline companies and has likewise been reflected in the natural gas retail rates in many sections of the country. These increases have been so drastic that many distributing utilities actively participated in the hearings on the Fulbright Bill in the Senate and the Harris Bill in the House, strongly opposing this give-away legislation. Likewise, state regulatory commissions and state and municipal officials joined in opposition to these measures.

The magnitude of the increases in the field cost of gas is demonstrated by the experience of seventeen major pipeline companies, which in 1953 acquired 96 per cent of the total volume of gas purchased from independent producers by companies reporting to the Federal Power Commission. In 1946 the weighted average price paid by these companies was 4.4 cents per Mcf. In 1953 the average cost had risen to 8.857 cents per Mcf. Based on filings for rate increases in the year 1954, the weighted average price had reached 9.723 cents per Mcf, an increase of 120 per cent above the 1946 level. Almost two-thirds of this increase has occurred since 1951. The increased cost of natural gas in the field to the seventeen major pipeline companies when placed upon an annual basis amounts to \$196,000,000. This is no small sum, even in our billion dollar economy.

In turn, these increases in the field cost of gas have meant higher resale rates. Between July 1, 1949, and March 1, 1955, natural gas pipeline companies filed 163 requests with the Federal Power Commission for increases in their resale rates aggregating more than \$505,000,000 on an annual basis. Of this amount, \$157,000,000 was disallowed or withdrawn; \$199,000,000 was placed in effect; and



THE almost universal inclusion of escalation clauses of one or more types in gas purchase contracts entered into in the last few years is conclusive demonstration of the lack of bargaining power on the part of pipeline companies. These clauses, which provide for future increases in the price of gas, many of them by reason of actions over which the buyer has no control, place burdens upon pipeline buyers which anyone having a free choice of suppliers would refuse to accept."

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\$149,000,000 was pending as of March 1, 1955.

NATURAL gas distributing utilities have been forced to pass on the higher cost of gas purchased from the pipeline companies to their customers. This fact is reflected clearly in the statistics published by the American Gas Association. On a nation-wide basis, the average unit cost of natural gas to residential consumers increased during the period 1945-54 from 6.32 cents to 8.06 cents per therm; for commercial customers the increase was from 4.16 cents to 6.19 cents per therm; and for industrial users from 1.65 cents to 2.37 cents per therm. In some states the increases are even more striking.

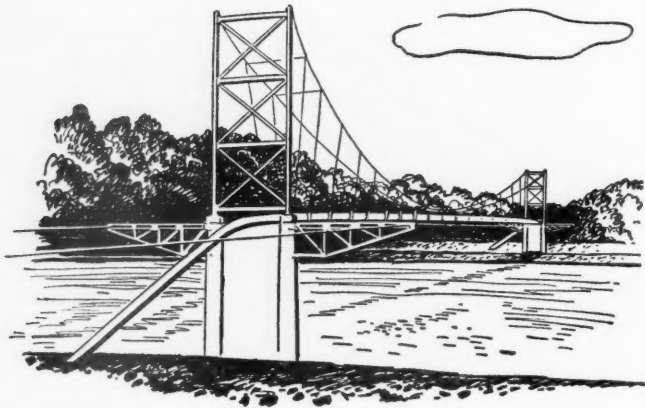
At the same time that the cost of natural gas has been going up, the unit cost of electricity to the residential consumers has been declining. In fact, between 1945 and 1954 the residential unit cost of electricity dropped from 3.47 cents to 2.79 cents per kilowatt-hour, a decrease of 24.3 per cent. The residential cost of natural gas, however, increased 27.5 per cent.

Convincing evidence was presented by representatives of distributing utilities before the congressional committees to the effect that the increased cost of natural gas was seriously hampering their efforts to expand natural gas sales, that in some areas they were being priced out of the market, and that if the upward trend in field prices continued, they would meet with financial disaster. The difficulties faced by the distributing utilities are evidenced not only by the statements made before the congressional committees, but are to be found in testimony in rate proceedings before the state utility commis-

sions and before the Federal Power Commission and in articles in trade magazines.

THE problem of distributing utilities in coping with the rising cost of gas is not confined to those companies in the consuming states of the North. The problem is being faced by distributors in the producing states as well. Illustrative is the following statement made by Arkansas Louisiana Gas Company in its annual report to stockholders for the year 1954:

The serious problem of increasing costs of purchased gas discussed in the annual report of 1953, became even more severe in 1954. These increased prices, together with increasing volumes required from purchased sources, have been a major factor in the decrease of the company's earnings. The system-wide average price paid by the company for purchased gas has increased from 4 cents per thousand cubic feet in 1949 to 9 cents per thousand cubic feet in 1953, and in 1954 increased to 10 cents per thousand cubic feet. The cause of this upward spiral is the tremendous competition for new gas reserves by the many long-line transmission companies serving other sections of the country, compounded by the fact that the development of gas reserves has not kept pace proportionately with the increased demand for natural gas throughout the United States. Competing companies are presently paying more for large gas reserves in the field under new long-term contracts than our company is receiving as a retail price from large industrial customers. This is a dramatic illustration of the company's inability to maintain adequate reserves with its present rate structure.



Free Enterprise and Public Interest

“‘FREE enterprise’ is an essential part of our national welfare. It should by all means be preserved. But freedom of private enterprise and of contract cannot be allowed, nor has it ever been allowed, to supersede the public interest and justify exploitation of captive consumers by a noncompetitive supply system of a basic necessity. Wherever there is a conflict, it has been our traditional national policy to establish reasonable regulation to protect the public interest. That policy with respect to interstate sales of natural gas was established in 1938, and should be preserved.”

Now the big oil and gas producers are making an all-out effort to explain away these increases in the retail prices of natural gas and to shift the blame for such increases from their own shoulders. The producers' representatives, in their congressional appearances and through the so-called "educational" campaign which they have conducted in the press and by other means, have sought to show that the drastic increases in the field price of gas have had only a small percentage effect on the bills of the ultimate consumers and further that the field cost of

gas itself is a small percentage of the total bill. It was implied that consumers were being gouged by the local gas utilities with the acquiescence of the state regulatory commissions.

These sorry diversions were part of a none-too-subtle scheme to turn public opinion into channels favorable for the exemption legislation being demanded of Congress. It was repeated over and over again that since these increases in retail gas rates were authorized by regulatory agencies, further increases in natural gas rates would surely be forthcoming if the

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producers were placed under regulation. In other words, rate increases according to them were the natural product of regulation.

Industry spokesmen cast the Federal Power Commission (which I, too, have had some occasion to criticize), the state regulatory commissions, and the distributing utilities in the rôle of the principal villains who were responsible for the increasing cost of gas to the ultimate consumer. Regulation of producer rates was described on the other hand as confiscatory and therefore destructive of our free enterprise system, socialistic and very close to Communism.

EFFORTS were even made to cause a congressional investigation to be made of the transmission and distribution segments of the industry. It was charged by proponents of the legislation that interlocking relationships and combinations in these segments of the industry were responsible for the increases in gas rates, and not the producers.

They have cast aspersions on the cost of operations and profits of the regulated pipeline and distributing companies, which are a matter of public record. But no producers have come forward to reveal their own profits from gas-producing operations or furnish any comparison with pipeline and distributing profits which would clearly reveal the responsibility for rising retail gas costs.

Whether these unfair and diversionary tactics will pay off, of course, remains to be seen. I doubt, however, if the producing segment of the industry won any friends among the marketers of their product or shed any real light on the picture by such machinations.

III.

SPOKESMEN for the producers pitch their plea for exemption from regulation upon the proposition that the producing segment of the industry is intensely competitive and thus regulation is not necessary to maintain reasonable prices for natural gas.

If the industry really were as competitive as claimed, and if one could depend upon the natural processes of supply and demand to keep prices to the consumer at reasonable levels, neither I nor my colleagues could reasonably oppose the exemption. That is why the industry has worked so hard in its efforts to argue the slogan of "free enterprise" while ignoring the facts about the concentration of power within the industry. But competition of the nature claimed is not present, and an examination of the facts concerning the so-called independent producers and the conduct of their business of producing and selling gas will show that competition cannot be depended upon to protect the consumer against exploitation.

The latest available figures compiled by the Federal Power Commission show that in 1953 a total 4,365 nontransporting producers sold natural gas to interstate pipeline companies reporting to the Federal Power Commission. These producers sold 4.249 trillion cubic feet to the pipeline companies. Abundant evidence of concentration in the production phase of the industry is found in the fact that of the 4,365 producers, 85.59 per cent of the number, or 3,736, sold only 2.1 per cent of the total gas purchased by the pipeline companies. Thus, only 629 producers, accounting for 14.41 per cent of the total, furnished 97.9 per cent of the total volume purchased.

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Broken down even further, 90.7 per cent of the sales were made by 174 producers. Twenty-nine producers—whose sales exceeded 35,000,000 Mcf in 1953—produced almost two-thirds of the natural gas sold to interstate pipeline companies. The twenty-nine largest producers who sell two-thirds of the natural gas are not a poor or impecunious group. Over half of them are on the most recent list of America's one hundred largest industrial corporations. The argument used by industry spokesmen, that intense competition exists in the producing fields between many thousands of producers and that reasonable prices of natural gas are thus assured, is not borne out by the facts.

THE producing segment of the natural gas industry, although not necessarily monopolistic in the legal sense, is certainly monopolistic in the economic sense. Natural gas transmission lines are expensive. Their cost is estimated at from \$40,000 to \$100,000 per mile. They are not easily moved. Once they have been laid the interstate pipeline company is practically at the mercy of the producers. For these lines cannot be picked up and relaid to other fields to escape an increase in the price of gas or to secure gas at a

lesser cost. Thus, the pipeline company buyer is a captive customer of the relatively few nontransporting independent producers who provide the overwhelming share of natural gas for the utility market.

THERE are other reasons why competition among the so-called independent producers is ineffective and furnishes no protection to consumers against unreasonable prices. The first is that there now appears to be a diminishing supply of natural gas and an expanding market. With demand exceeding supply, the result is a seller's market.

As evidenced by the testimony before the congressional committees and in the certificate and rate proceedings before the Federal Power Commission, the competition for natural gas is between buyers seeking a supply rather than between sellers seeking a market for their product. We have then a natural resource which is diminishing in relation to annual use and which is a necessity to most users, and, on the other hand, a demand which is increasing. Fair and reasonable regulation in such circumstances is necessary to protect the consumer against skyrocketing prices. Competition among producers cannot be depended upon to do so.



“THE sponsors and proponents of the Fulbright Bill and the Harris Bill point to certain provisions of these bills as furnishing all the protection necessary to save natural gas consumers from unreasonable rates. I have examined these alleged protections. My analysis shows they are ineffective, futile, and of doubtful legality, and will not work to protect the natural gas consumers. They were not designed to do so and are mere sugar-coating which has been applied to give the appearance of regulation without providing its substance.”

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SECOND, because the large blocks of reserves which must be secured in order to make feasible any major expansion of transmission line capacity are held by the major oil companies who control most of the gas reserves in the Southwest, it is necessary for the pipeline companies to deal with these relatively few large producers. This also limits competition. Thus, if a pipeline company desires a large block of reserves it has no practical alternative but to go to the major producers and accept the prices which they dictate. The many thousands of small producers have been and will continue to be an ineffective source of competition in such circumstances. Moreover, while the southwest region supplies more than 95 per cent of the gas supply of the interstate pipeline companies, more than 60 per cent of the 4,365 producers are located in the Appalachian area which produces only 3.4 per cent of the total gas supply.

The competitive situation in the gas fields in nowise resembles the normal competition involved in the buying and selling of commodities on the open market. If producers of coal or fuel oil raise their prices, buyers can use several transportation media to obtain supplies from other sources. Because of the high-cost fixed investment in gas transmission lines, the expense of tearing up a pipeline and laying a new one prevents the pipeline company from shopping around for lower prices. Thus, the type of competition which is present today in the gas fields does not and cannot operate to maintain reasonable prices of natural gas.

THE almost universal inclusion of escalation clauses of one or more types in gas purchase contracts entered

into in the last few years is conclusive demonstration of the lack of bargaining power on the part of pipeline companies. These clauses, which provide for future increases in the price of gas, many of them by reason of actions over which the buyer has no control, place burdens upon pipeline buyers which anyone having a free choice of suppliers would refuse to accept. The evidence is clear that the pipeline companies had no choice. If they wanted natural gas they were compelled to accede to the demands of producers that such clauses be inserted in the gas purchase contracts.

The existence of such clauses in gas purchase contracts belies assertions by producer representatives that there is free and open competition in the purchase and sale of natural gas in the producing fields of the Southwest.

IV.

IT has been asserted time and time again by proponents of this legislation that the regulation of independent producers is not feasible, that the cost of regulation will be staggering and the benefits, negative. I do not believe there is any merit to these assertions. Regulation of natural gas companies—pipeline companies—who are engaged in exploration, development, and production of natural gas in most of the fields in which the nontransporting producers conduct their operations has been conducted by the Federal Power Commission since 1938. As a matter of fact, approximately 50 per cent of the total number of gas wells in the United States are owned by pipeline companies reporting to the Federal Power Commission. Thus, the commission has had considerable experience in dealing with a ma-



The FPC Gas Case Load

"SINCE the Phillips decision by the Supreme Court, the [Federal Power] commission has been going forward with the regulation of the so-called independent producers. It has adopted rules and regulations. It has required the compliance filing of rate schedules and of applications for certificates. According to a press release of the commission issued on March 10th of this year, 10,000 rate schedules of producers had been processed, and the situation was current. While the certificate applications had not been processed quite so rapidly, since each application requires a mandatory hearing, remarkable progress is being made . . ."

for producing segment of the industry and has successfully regulated that segment.

Since the Phillips decision by the Supreme Court, the commission has been going forward with the regulation of the so-called independent producers. It has adopted rules and regulations. It has required the compliance filing of rate schedules and of applications for certificates. According to a press release of the commission issued on March 10th of this year, 10,000 rate schedules of producers had been processed, and the situation was current.

While the certificate applications had not been processed quite so rapidly since each application requires a mandatory hearing, remarkable progress is being made in clearing up the backlog. Thus, there is no substance to the charge that regulation of producers is an impossible task which will bog down the commission.

SOME of us are quite willing, however, to reduce the regulatory burden very substantially by exempting the interstate sales of all those producers who sell for resale less than two billion cubic feet of gas a year. The 174 producers whose sales would be thus kept subject to federal regulation sell more than 90 per cent of the gas purchased for interstate commerce by the pipelines. I am confident that adequate protection can be afforded the consumers and distributing companies if regulation is concentrated on this major segment of the nontransporting producers.

No one expects the commission to handle this regulatory task without some turmoil and strife. With less than a year of actual experience in processing rate and certificate applications filed by nontransporting producers, it would be too much to expect that all of the regulatory bugs have been eliminated and the problems

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solved. But these problems do not appear to be any more insurmountable than the problems and legal attacks which the commission experienced after the Natural Gas Act became law in 1938. The road ahead may not be smooth, but at least the commission has started on a task which, if it is permitted to complete the job, would be of immeasurable value to the people of the United States.

V.

THE sponsors and proponents of the Fulbright Bill and the Harris Bill point to certain provisions of these bills as furnishing all the protection necessary to save natural gas consumers from unreasonable rates. I have examined these alleged protections. My analysis shows they are ineffective, futile, and of doubtful legality, and will not work to protect the natural gas consumers. They were not designed to do so and are mere sugar-coating which has been applied to give the appearance of regulation without providing its substance.

One provision of the bill purports to give the commission authority to disallow as an operating expense of the pipeline company that part of the price paid for natural gas in a new or renegotiated contract which is in excess of the "reasonable market price." Aside from the doubtful legality of this provision (which would deny recovery through rates of payments made by a pipeline company in good faith under contracts entered into at arm's length), it is incomprehensible to me that the Federal Power Commission would require the regulated utility to suffer losses through the disallowance of payments in excess of the "reasonable market price" while the producers selling the gas were

able to secure excessive profits under the contract arrangement. Such a proposal is illogical, unfair, and completely contrary to regulatory purposes. The results would be inevitable. Contract prices would be accepted as the "reasonable market price." The proposed control is of no help whatsoever to the consumer.

ANOTHER section of the bill dealing with certain types of escalation clauses in existing contracts purports to relieve the pipeline company from paying producers any amount for gas which is in excess of the reasonable market price as determined by the commission. This proposal flies directly in the face of § 1 of the Fulbright Bill, which defines such sales as not being in interstate commerce. The validity of such proposal is very much in doubt, since it would appear impossible for the Federal Power Commission to regulate a sale by a producer to a pipeline company which Congress has declared not to be a sale in interstate commerce.

The "reasonable market price" standard, as it is defined in the bills and in the reports of the Interstate and Foreign Commerce committees of the Senate and House, is of no practical benefit in providing reasonable natural gas prices. This is so because as the standard is defined it can mean only the contract price which has been agreed upon by the buyer and seller. The "reasonable market price" standard is contrary to utility regulatory principles. Its adoption would result in no effective control being imposed on field prices of natural gas.

Moreover, these alleged consumer protections apply only where the pipeline company is seeking a rate increase from the Federal Power Commission. They do

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not apply to the pending rate increases or to the excessive contract prices which have already become effective. In my opinion, it would be far better to repeal the Natural Gas Act in its entirety than to give the natural gas consumer the illusion that he would be protected by federal "regulation" of the character proposed in the bills.

VI.

THE provision in the Fulbright Bill requiring the Federal Power Commission to allow natural gas pipeline companies owning gas reserves to include in operating expenses the "reasonable market price" of the gas produced from their own leases is nothing less than an invitation to the pipeline companies to pay higher and higher prices to the independent producers for the gas which they purchase, since such higher prices can be passed on to the consumer and at the same time act as a basis for increases in their profits from their own produced gas.

What possible justification can there be for this windfall to the pipeline companies? As the pipeline companies and producing affiliates own more than 28 trillion cubic feet of natural gas, they stand to gain huge profits over and above a fair

return under this section of the Fulbright Bill.

The values of their reserves will increase as the prices rise. An indication of the bonanza which will come their way is to be found in the 1954 annual report of Panhandle Eastern Pipe Line Company to its stockholders. The report states that the company's owned reserves are carried at a book cost aggregating less than \$3,000,000, which the company estimates is approximately one per cent of their replacement cost under present conditions.

IN other words, natural gas reserves which cost \$3,000,000 and the costs of exploration, acquisition, and development, of which the customers of the company paid through rates, would under the Fulbright Bill be sold to their customers for 100 times that cost or \$300,000,000. Under these circumstances, how is it that the pipeline companies can be counted upon as guardians of the consumer interest in the purchase of natural gas from producers as some propaganda argues?

As a matter of fact, seven of the major pipeline companies already have pending or have received rate increases from the Federal Power Commission based in part



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on the substitution of the commodity value or average field price of gas in the field, for their cost of production plus a fair return on producing properties devoted to the public interest. These requested or allowed increases cost consumers approximately \$40,000,000 annually. The Fulbright Bill would make this method of regulation mandatory. Thus the reasonable gas rates which consumers have secured over the years through regulation under the Natural Gas Act would be obliterated.

VII.

WHAT will be the effect on natural gas consumers if the oil and gas industry is successful in its campaign against fair and reasonable regulation? To answer this question we need only to look at the trend of gas prices in recent times and to statements by industry spokesmen that higher gas prices are anticipated.

We have seen that the average cost of natural gas at the wellhead in the Southwest has increased from about 5 cents to 10 cents per Mcf between 1947 and 1953. Prices in new contracts range from 15 cents to 24 cents per Mcf. These increases in the field cost of natural gas occurred in the absence of effective federal regulation because of the commission's self-denial of jurisdiction. In 1954 utilities sold approximately 5.8 trillion cubic feet of natural gas to ultimate consumers, an increase of approximately one-half trillion cubic feet over the volume sold in 1953. However, using a volume of 5 trillion cubic feet, a modest 5 cents per Mcf increase in the average cost of natural gas at the wellhead—a rise from 10 cents to 15 cents—would cost consumers an additional \$200,000,000 a year. If the average

cost of gas rises to 25 cents per Mcf, and this price has been indicated by industry spokesmen to be in range of what may be expected in the future, the consumer would be hit for \$600,000,000 a year above present gas costs. This is the kind of bonanza which motivates the \$1,500,000 "war chest" which the industry has gathered to finance its campaign.

The attempt to minimize the impact of higher prices on gas consumers by saying "it will cost each family only a few pennies a day" is a shocking argument. Pennies extracted from the many will mean millions for the few. The whole purpose of rate regulation is to save modest sums for the users of utility services by restricting profits to a reasonable level.

MUCH of the industry propaganda also argues that with no regulation there will be more exploration and more gas for consumers, the implication being that reasonable regulation will stifle discovery of natural gas reserves. No reasonable person can believe, however, that the mammoth oil industry, whose discovery and marketing of gas is incidental to its exploration and development of oil, will ever stop or slow down or speed up its primary oil exploration work because the sideline, natural gas, is subjected to fair regulation. The exploration for oil and gas will not subside in any case.

This argument then gets down to an implied threat by the oil industry that it will waste or "flare" the gas rather than let it come to the consumers outside of the producing states under fair regulation. I just do not believe that the industry would be guilty of such a holdup, and I do not feel that Congress should fix national policy on the basis of such implied intimidation.

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ONE final point should be noted: If the industry succeeds in gaining exemption from federal regulation and the average prices at the wellhead increase from the present 10 cents to 15 cents or 20 cents or 25 cents, the industry stands to gain enormous windfalls from the increased value of the natural gas reserves which they own. At the present time such reserves amount to about 210 trillion cubic feet of gas. An increase of only 5 cents per thousand cubic feet would result in an increase in the value of the gas reserves of over \$10 billion. If the prices go to 20 cents or 25 cents this windfall would be doubled or tripled. These are the vast sums which the industry stands to gain from exemption, and no one should be fooled by claims made in the name of "free enterprise," "freeing the small producer from federal red tape," "states' rights," or "the sanctity of contracts."

"Free enterprise" is an essential part of our national welfare. It should by all means be preserved. But freedom of private enterprise and of contract cannot be allowed, nor has it ever been allowed, to supersede the public interest and justify exploitation of captive consumers by a noncompetitive supply system of a basic necessity. Wherever there is a conflict, it has been our traditional national policy to establish reasonable regulation to protect the public interest. That policy with respect to interstate sales of natural gas was es-

tablished in 1938, and it should be preserved.

VIII.

IN summary, competition cannot be relied on to protect the consumer against exorbitant prices for natural gas. The industry is not really competitive at the production, transmission, or distribution levels. Once the pipelines and the gas mains are laid and the consumers have invested in appliances, a natural monopoly with captive customers is created. The natural gas industry is an industry affected with the public interest, and regulation has been and should continue to be applied. The industry has grown to the sixth largest in the nation and has become extremely profitable. It will gain billions of dollars in windfall profits if it is exempted from regulation. It is an industry which already receives special tax treatment through the 27½ per cent depletion allowance.

The industry seeks protection against loss by way of tax policy, escalation clauses, minimum wellhead prices, and conservation agreements, and at the same time complete freedom to charge what the traffic will bear to captive customers. It is my considered judgment that legislation should not be passed by this Congress, the effect of which will be complete nullification of the Natural Gas Act as an effective regulatory instrument.

"IN my judgment, it is not only possible but almost surely probable, that in the regulated industries, the rates to the public would be lower and the service better if the return on investment were higher and stimulation to progress were thereby greater. It seems to me this possibility deserves study and experimentation."

—SINCLAIR WEEKS,
Secretary of Commerce.

Natural Gas Is Still the Best Buy

In the heat of the controversy over political, legislative, and regulatory arguments involving the gas industry, we sometimes may be tempted to overlook the basic economics of America's most popular heating fuel.

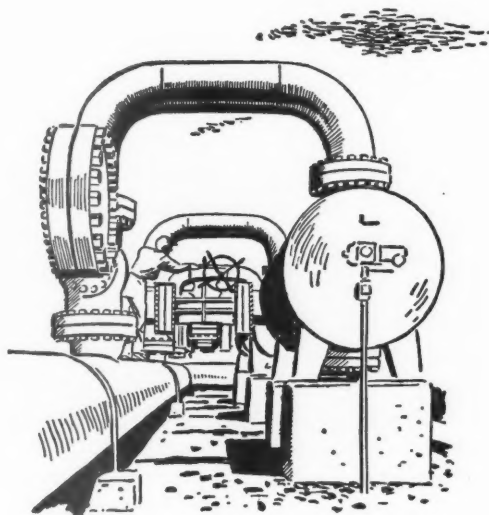
By W. LARRY SHOMAKER*

THE natural gas industry has a powerful story to tell—the question is, are we telling it? Despite all the inflationary trends, despite the increased costs of gas in the field, despite the upswing in construction costs, natural gas today still offers the consumer his best buy. There have been murmurs that “natural gas is no longer a bargain” and that “natural gas is pricing itself right out of the market.” These criticisms are unfounded, considering the industry as a whole. This is not intended to minimize

the problems existing in those instances that are the exceptions.

This is a story which we in the gas industry know ourselves, but one which still must be told over and over again to our customers and the general public. As is so often the case, we find it difficult at times to stand back and correctly appraise the position of our own industry. In our effort to keep pace with the great growth and expansion in a period of rapidly changing price levels, we have perhaps neglected to keep constantly before us the fact that natural gas today is still one of the “best buys” on the consumer’s market. The recognition of this fact in guiding industry

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actions is what will sell gas and promote the continued growth of the industry.

It was not very long ago that the cost of natural gas in the field was extremely low. The cost of pipeline construction was also down. In fact, the price at which the gas was sold to the ultimate consumer in many instances was ridiculously low. This superior fuel was being sold at bargain basement prices. The public soon became aware of this most unusual bargain. During and after the war, the prices of solid and liquid fuels began to spiral upward. This combination of circumstances created a tremendous price differential between the retail price of gas and that of coal and oil. In the Northern Plains area served by Northern Natural Gas Company, for example, in many instances gas was being sold to the distributor for as little as 25 per cent of the price being paid for coal and oil by the industrial consumer.

Pipelines and distribution companies readily recognized there would be an unprecedented demand for gas and immediately set into motion expansion plans to meet this growth, requiring outlay of tremendous investments.

It is no wonder, then, that in just the past ten years, the natural gas industry has risen to a prominent spot in our economy. This is evidenced by a few simple statistics. In 1944, natural gas was responsible for only 12.6 per cent of the mineral energy production of this nation. Immediately upon the conclusion of World War II, the natural gas industry expansion boom was under way, and by 1953 that percentage had increased to approximately 25.6 per cent. The extent to which natural gas has supplied an in-

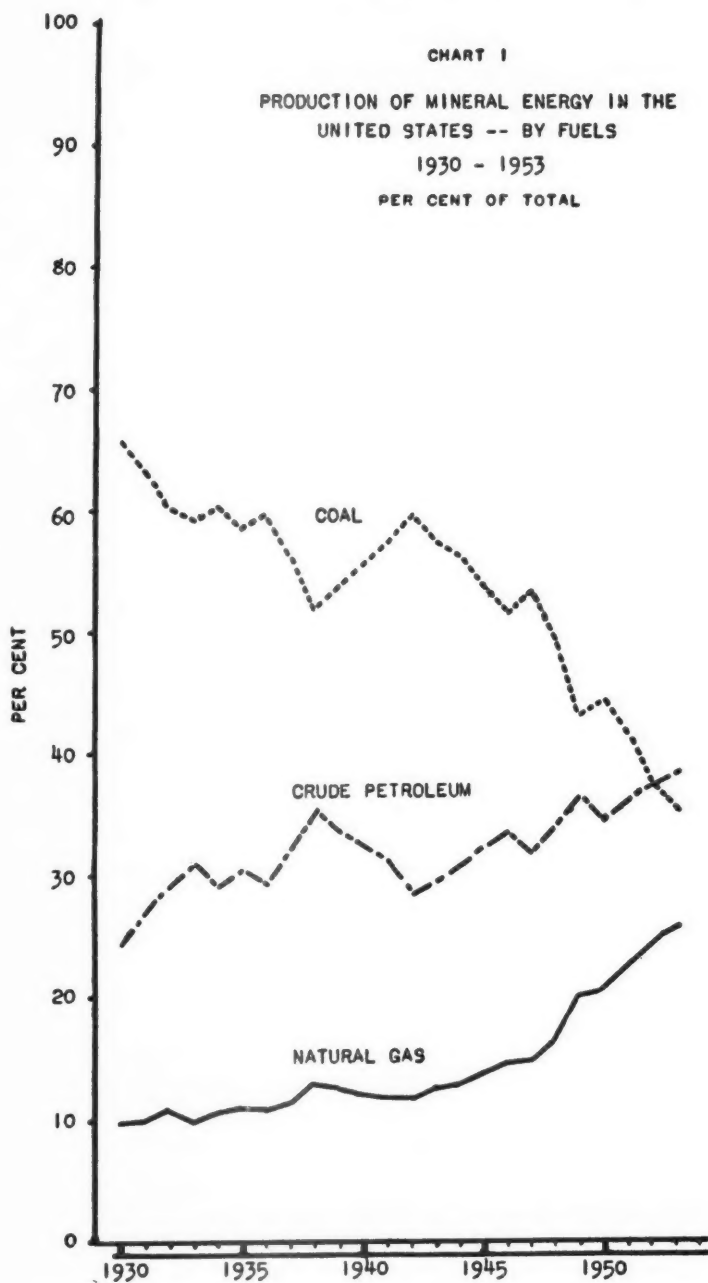
creasing part of the nation's fuel requirements is shown in Chart I (page 637). This increase in the share of the nation's fuel supply was accomplished by the natural gas industry in the face of a continuing rapid increase in the demand for energy resources by the consumer during the period.

A MAJOR reason that the industry was able to provide a bigger portion of the nation's mineral energy production was that it "threw itself" into the job of expansion. Comparatively, probably no other industry in this nation has ever expanded at the rate shown by the natural gas industry. New and larger pipelines have been built in all parts of the country to carry the gas from the southwestern states and other gas-producing areas to the distant major markets. According to figures recently released by the Federal Power Commission, in the twelve months ended June 30th of this year, that body authorized certificates for construction of new natural gas facilities totaling \$465,324,175. Since July 1st of 1945, about the time that the natural gas boom got under way, such authorizations have totaled close to \$5 billion!

And the expansion has not stopped. A presently authorized line to the Pacific Northwest region now is under construction, and a pipeline to the far Southeast has been just recently proposed. When these lines are completed, practically all the major concentrated consuming areas of the nation will be in reach of the natural gas pipelines.

As gas has taken a progressively larger share of the nation's fuel market, the portions used by various classes of consumers have changed materially. From 1945 to

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SOURCE:
BUREAU OF
MINES

OCTOBER 13, 1955

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1953, industrial use of natural gas showed a percentage change of 78.5 of gas marketed to 71.9, while residential use was rising from 15.6 per cent to 21.3 per cent. This percentage decline in industrial use, it must be kept in mind, is only relative. Actually, industrial use of natural gas increased during that period from 3,063 billion cubic feet to 5,849 billion cubic feet.

THE successful move by gas into the home-heating field is another evidence of gas industry growth. Natural gas accounted for 43 per cent of the automatic central home-heating units at the beginning of 1954, compared with only 29 per cent in 1946. During this same period, the number of automatic oil burners increased 178 per cent, automatic coal burners fell by 3 per cent, and gas burners increased by 324 per cent. It has been the "bargain" qualities of natural gas that have played a dominant rôle in attracting these new customers.

Let's take a look at another class of major gas use—production of electric power. The trend of gas consumption for electric power is rising at a much faster rate than the use of coal or oil. The increasing share of electric power production from gas is of special importance in evaluating the competitiveness of the price of gas.

Since many of the electric power companies are equipped to use either gas, coal, or oil, and since the cost of fuel is a singularly important item to power producers, the choice depends primarily on which fuel is the cheapest. Price competition is almost the sole determinant of which fuel is consumed and gas is gaining business at a faster rate than either of its competitors. The increased use of

gas for electric power generation is occurring in all sections of the country served by the pipelines.

The situation with regard to the sale of natural gas for industrial purposes in the Northern Plains area served by Northern Natural Gas Company is somewhat different than in many parts of the country. In this area where there is no native fuel, it must be shipped into the territory either by barge, rail, or pipeline. This land-locked area therefore must rely on fuel from distant sources. From about 1935 until about 1945, natural gas enjoyed a very wide price advantage. During the past ten years, however, this spread has narrowed. Nevertheless, today gas is still being sold at wholesale to the distributors for industrial purposes at prices that will permit its competitive resale.

ALL of the tremendous expansion and growth described above took place during a period of material inflation of costs. Since about 1940, we have watched increasing costs of construction, labor, equipment, and supplies. For instance, construction of a mile of 24-inch pipeline cost approximately \$17,000 in 1940. Today that figure approaches \$50,000, an increase of almost 200 per cent. The cost of installed compressor horsepower has increased almost two and one-half times from \$125 per horsepower in 1940 to \$300 per horsepower today. At the same time, payroll costs also increased substantially. Federal, state, and local taxes also increased during this period.

While prices in general have more than doubled, wholesale natural gas rates have increased less than 50 per cent. The natural gas industry has had a difficult battle against these rising price trends. An

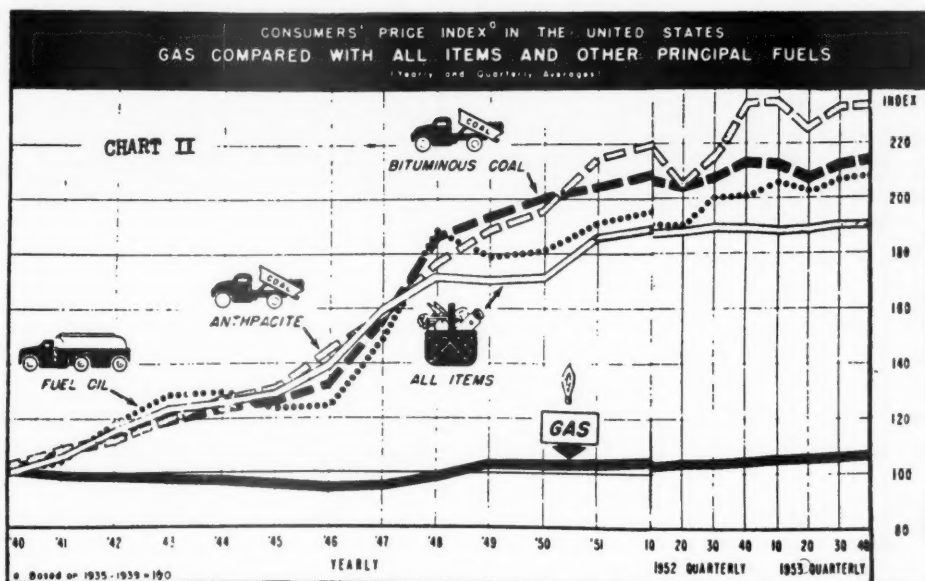
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important factor which has contributed to its ability to meet these trends has been technological improvement. When new pipelines or additions are considered today, the thinking is in terms of larger and larger diameter pipe and higher and higher pressures, which far outdistance in efficiency the older and smaller facilities in all operating aspects. New and improved techniques have been developed for laying the thousands of miles of pipelines that go into the ground each year. Modern equipment leads the way through rugged terrain and digs the ditches over and through mountains and across rivers. New welding methods mean longer life and more efficient performance of the pipelines.

System capacities have been boosted through installation of more efficient compressor station equipment. Vertical and turbine compressor station units now are

more and more finding their place in the operating pattern.

As a regulated industry, natural gas prices to the public could not be increased to cover such higher costs except by approval of various local, state, or federal authorities. To obtain such approval, in many cases, required long hearings which received wide news coverage so that such proposed increases were constantly brought to the attention of the public. During the entire period from the date an application for an increase in rates is filed and the time the proceeding is finally concluded, sometimes taking a year or more, the matter is constantly in the public spotlight. This fact often leaves the public with the impression that natural gas rates have advanced much more than they have. On the other hand, as we all know, unregulated industries can hike their



Source - Gas Age Magazine - February 24, 1955

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charge for their commodity merely by changing the price tag.

The effectiveness of the industry in preventing its prices spiraling upward comparable to those of competitive fuels and other commodities is supported by various statistics. Chart II (page 639), which is based upon information taken from the Bureau of Labor Statistics, is illustrative of the position gas has maintained throughout this period. Based upon 1935-39 as 100, price of gas is still at almost its 1935-39 level, whereas all other goods the consumer purchases are almost at the 200 index level, and the index of the price of coal and oil is well over the 200 level on the same basis.

The average housewife doesn't need us to tell her that prices are up—that her dollar isn't worth today what it was in 1940. She realizes it firsthand every time she goes shopping, but she may not realize that the rates of natural gas she uses for cooking and heating her home have advanced far less than the prices of most other commodities. This is clearly shown on Chart No. II.

To be specific, the dollar the housewife spends for food today buys slightly less than half of what her preinflation dollar bought. Her clothing and furniture dollar buys just half as much. While these everyday living necessities have doubled in cost, the average retail house-heating rate of natural gas in the Northern Plains, the market area served by Northern Natural Gas Company, has not increased anywhere near this amount.

THE following Table I shows the results of a study made by Mid-Continent Oil and Gas Association of the average retail prices of residential heat-

ing fuels in selected cities as of March, 1954, based upon Bureau of Labor statistics. This table again demonstrates the relative price advantage natural gas still maintains over competitive fuels in most areas:

TABLE I
AVERAGE RETAIL PRICES OF RESIDENTIAL HEATING
FUELS IN SELECTED CITIES, MARCH, 1954—
ADJUSTED FOR EFFICIENCY

	<i>Cents Per Million Btu</i>		
	<i>Coal</i>	<i>Oil</i>	<i>Gas</i>
Chicago	110.0	114.0	105.3
Cleveland	96.3	120.4	57.1
Detroit	97.1	120.1	82.5
Minneapolis	110.6	109.6	75.6
New York	101.6	111.9	103.4
Pittsburgh	62.9	116.2	53.9
St. Louis	103.1	113.1	75.6
Washington, D. C.	103.4	114.8	119.8

It doesn't require a highly trained economist to figure out why the consumer has taken to natural gas. Most everyone, including the economist, shops the same way. They buy the product or service that gives the most for their money. And natural gas is proving again and again that it is the "best buy."

IN the territory of Northern Natural Gas Company, for the price of an ordinary postage stamp, natural gas will carry out a lot of household chores. For just three cents it will cook breakfast every day for two weeks, or it will operate a gas refrigerator for twenty hours. For just three cents, it will heat the average home for an entire hour, or will heat water enough for two baths. Three cents worth of natural gas will run a clothes dryer for a week's load of wash, or will dispose of an entire day's garbage and refuse in an efficient gas incinerator. That's quite a bit for three cents worth of anything in this day and age. These figures are based on the experience in Northern's own area, and will vary slightly in other locations,

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but I am sure that all gas users will find they are getting similar "bargains."

In addition to the continued price advantage, natural gas has, of course, plenty of performance advantages with which we are all familiar. Gas burns cleaner and more efficiently than all of its competitors. There is no need for concern on the part of the consumer that his fuel supply will be cut off in the middle of winter because roads are icy or delivery trucks are snow-bound. There always is a steady flow of gas through the pipelines directly to the consumer.

On the industrial side the collateral advantages of natural gas as a fuel are many. Stokers, pulverizers, and oil pumps are not required to prepare the fuel for proper burning. There is no storage necessary. Gas is cleaner, more flexible, and the heat is more uniform. Simplicity of equipment reduces maintenance costs.

These performance advantages are basic facts, probably considered elementary by most industry members. But these

are facts that make gas a "bargain," and these are facts that sell more and more natural gas.

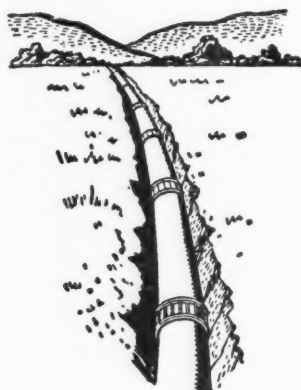
IN the face of all the available information, the claim that natural gas is rapidly pricing itself out of the market and has exceeded its competitive level is as yet the expression of fears rather than a statement of fact. In certain isolated market areas, the price of gas may be bumping its head on a competitive ceiling, or in certain areas most remote from the sources of supply natural gas as yet does not occupy a fully competitive position with other fuels for certain purposes. However, from the industry point of view and taking the nation as a whole, wherever it is available natural gas is in nearly all cases the "bargain fuel." By maintaining an awareness on the part of the public of this fact, the industry will continue to grow and natural gas will continue to be known as the "best buy" in the fuel market.

"THERE are in this country a great many people who are not sympathetic to the free market system of which a free securities market is a very cornerstone. They are advocates of an economy directed and managed by government. Anyone who holds those theories can have no sympathy with the free market in securities or any of its works. If one believes that the accumulation and channeling of capital ought to be directed by the government, then he cannot tolerate a situation through which privately accumulated capital can be directed to such purposes as the owners choose. . . .

"This being a country of free speech these people have a right to have their say and if they want to come before congressional committees and expound their theories and ideas, they should by all means have the opportunity.

"But when they do give their testimony, it ought certainly to be accompanied by a clear exposition of their underlying philosophy. A man who is basically opposed to the existence of free securities markets can hardly be accepted as a competent witness as to the behavior of free securities markets, for in his eyes nothing that such a market can do is right . . ."

—EDITORIAL STATEMENT,
The Wall Street Journal.



Gas: The Nation's Youngest Old Industry

The natural gas industry, which already has converted most of the nation to the "wonder fuel" and has sold its way into a solid position as the nation's sixth largest industry, is setting new sales records through the development of new products and processes for home and industry.

By W. F. ROCKWELL, JR.*

As the nation's natural gas pipeline system continues to expand, the entire gas industry is hitting new peaks in production, utilization, and sales.

With nearly \$5 billion worth of pipeline projects completed or approved since 1945 and with proven reserves at an all-time high of more than 211.7 trillion cubic feet, leaders in all branches of the industry have been able to switch their attention from the problems of inadequate transmission facilities and conversion to natural gas to the more profitable business of development and expansion.

While some early gains might be cred-

ited merely to the fulfilling of pent-up demand following the war years, the spectacular advances of more recent years are attributable to sound planning, progressive thinking, and aggressive action. The results, establishing gas as the nation's sixth largest industry, have been achieved despite powerful, well-heeled competition.

GAINS have been made across the board—in industrial, commercial, and residential uses of gas. The number of customers in all categories has increased rapidly, and the consumption of gas has risen at an even faster rate. Gas appliances and equipment are achieving spectacular gains in unit sales and dollar volume. While, at

*President, Rockwell Manufacturing Company, and of the Gas Appliance Manufacturers Association. For additional personal note, see "Pages with the Editors."

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the same time, the industry is more than keeping pace with competition in modern design, automatic operation and efficient performance of products, ranging all the way from custom-designed industrial equipment to modern appliances for home and institutional use.

Let's have a closer look at what's going on.

INDUSTRIAL America, which was not exactly sitting on its haunches back in 1941, used 11 billion therms of gas in that year. By 1954 it upped consumption to 33 billion therms—three times the amount used in a year of “all-out” defense production, and $7\frac{1}{2}$ times the total for 1932, the earliest year for which figures are available.

Utility companies now deliver natural gas to more than 82,000 industrial customers as compared to 22,000 in 1932. If we add the industries using manufactured, mixed, and other gases, the present total rises to 112,000, and the rate of growth continues to increase as the result of conversions from other fuels, development of new processes and equipment, and the rising need in all kinds of industry for a fuel which offers speed, precise control, flexibility, and cleanliness. That means gas, of course.

Utility company revenues from industrial gas consumption climbed from about \$90,000,000 in 1932 to a 1954 total of more than \$820,000,000 as varied industries recognized the possibilities of gas.

Actually, there are now 26,000 adaptations of more than 2,500 individual uses of gas in the fabrication of almost every item required in the daily life of the nation.

Recently, GAMA's industrial equip-

ment division polled principal companies in all leading U. S. industries to determine the multiple uses of gas and solicit details as to quantities used and opinions on the fuel's replaceability or indispensability. The replies point up some of the reasons for the increased use of gas in industry.

For example, a leading radio and television manufacturer reported that “the use of gas for glass firing of vacuum tubes is the only practical process for handling this fundamental operation.”

OBSERVING that “gas is safe, easy to handle, and requires no investment for space or storage,” a producer of surgical supplies said there is “practically no substitute for gas for melting resin or for inert gas generation or sprayed enamel drying.”

Approximately 40 billion tin cans are manufactured in the U. S. annually, and almost all require gas heat treatment. A prominent firm in this field not only uses gas for tin can body making but also for large-scale bean baking, which requires a rapid, dry heat, and for boiler steam generation. Its fuel utilization engineer described the versatility of gas as especially important in meeting rapid changes in heat rating to conform to process demands.

More than 1,000 gas processes are used in the plants of a roller bearings manufacturer who reported that “approximately 40 heat-treating operations would be extremely difficult to replace with any other fuel.”

A processor of a variety of materials, including paint and varnish, floor covering, cosmetics, confections, lubricants, chemicals and fatty acids, as well as foods, reported that gas figures in all instances. He pointed out that the use of gas for

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puffing cereals and heat treating of metals is "highly preferable."

Both elevator and automobile manufacturers make extensive use of gas. A top elevator producer told GAMA it uses gas for brazing, tempering, annealing, heating, preheating for welding, shrinking, and metal finishing. "The cost of changing to electricity or other heat source would be prohibitive," the report said. "Gas is more economical, flexible, and available." More than 80 different gas processes are involved in the assembly of an automobile. These range all the way from block testing of engines to quick drying of body paint.

In the rapidly growing field of petrochemistry, natural gas is used both as a raw material and as a fuel. Last year petrochemistry produced approximately 25 per cent of the nation's chemicals. In ten years this figure is expected to double, particularly in the production of ammonia, alcohols, plastics and fibers, synthetic rubber, and detergents.

THE advance of gas on the industrial front has been paralleled in the commercial field. Gas companies in 1945 served 1,278,000 commercial customers. By 1954 the total approximated 2,000,000,

an increase of 56 per cent. Latest authoritative estimates are that 97 per cent of the more than 65,000,000 meals served daily in public and institutional eating places are cooked by gas.

Of course domestic appliances are responsible for the greater part of the regular million-meter-a-year increase reported by gas companies. And the most dramatic gains have been recorded by gas central heating equipment.

In 1945 there were only 1,292,000 gas central heating plants in American homes. The figure rose more than 400 per cent to 6,959,000 by 1954, while oil units, the nearest competitor, went up 202 per cent, from 2,517,000 in 1945 to 7,606,000 last year. Gas has been gaining on oil to such an extent that the total of gas central systems in use is expected to exceed the total of oil units by the end of 1955.

This expectation is backed by current figures which show that 1955 will undoubtedly be the greatest year in the history of warm air furnaces. Furnace manufacturers in the first six months of 1954, best year to date, shipped 251,800 units. They topped that performance during the same period this year by shipping 344,300 units, an increase of 36.7 per cent. A poll of the furnace manufacturers recently



G "As the nation's natural gas pipeline system continues to expand, the entire gas industry is hitting new peaks in production, utilization, and sales. With nearly \$5 billion worth of pipeline projects completed or approved since 1945 and with proven reserves at an all-time high of more than 211.7 trillion cubic feet, leaders in all branches of the industry have been able to switch their attention from the problems of inadequate transmission facilities and conversion to natural gas to the more profitable business of development and expansion."

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conducted by GAMA revealed that the manufacturers expect their branch of the industry to finish 1955 about 19.8 per cent above the 1954 total of 661,900.

IT's worth noting that the manufacturers' consensus is likely to be on the conservative side. Those who achieved the 36.7 per cent increase in the first half of this year estimated in January that the industry's performance this year would be only about 8 per cent over 1954. Boiler manufacturers, too, surpassed their estimates during the first six months, shipping 30,000 units for a 6 per cent increase over the same 1954 period.

It's also worth noting that these same manufacturers expect 1956 business to be somewhat better than 1955, with a long-range view indicating an increase of from 2 to 6 per cent for next year.

Automatic gas water heaters, too, are enjoying a boom year, with shipments for the first half totaling 1,404,000 units, 24.2 per cent above the same period of last year. Consensus is that 1955 shipments will reach 2,622,700 units, 15 per cent over 1954, and 10.9 per cent above the previous peak year of 1950.

The water heater manufacturers, too, were wary in their forecasts at the beginning of the year. The consensus at that time was that shipments would run about 1.9 per cent above 1954. However, in GAMA's General Business Outlook, released in February, Edward R. Martin, director of marketing and statistics, pointed out that "with all companies performing close to their individual expectations, 1955 could be the banner year for automatic gas water heaters, with sales 13 per cent above 1954."

Gas range manufacturers have similar

bright figures to offer. Shipments during the first six months of 1955 were 10.8 per cent above the similar period of last year and the consensus is that the 1955 total will reach 2,320,700 units, 14.7 per cent above 1954.

Other branches of the industry which are chalking up substantial gains are vented recessed wall heaters, floor furnaces, direct heating equipment, gas unit heaters, domestic gas incinerators, and gas clothes dryers.

OF course, these sales increases were achieved by sound sales promotion on the part of manufacturers and gas companies. Their missionary work among builders and architects, for example, resulted in gas heat being installed in seven out of ten new homes during the past few years wherever the fuel was available. And, of course, the installation of gas heat usually means that other gas appliances will be included in the new home so that the owner may enjoy the economy that goes with multiple usage of the fuel.

This successful exploitation of the new home market is still being carried on—more intensively than ever.

A recent survey of leading gas companies conducted by the American Gas Association revealed that every one of them has a special division working with builders on the utilization of gas in new housing. The smallest builders' department reported was a three-man staff of specialists, others ranged from six to twenty-nine men, plus office and clerical help.

The builder contact men are usually trained housing experts or engineers qualified to help in making out preliminary plans and blueprints, giving advice on layout, design, sizing of equipment estimat-



Gas for New Buildings

“A RECENT survey of leading gas companies conducted by the American Gas Association revealed that every one of them has a special division working with builders on the utilization of gas in new housing. The smallest builders' department reported was a three-man staff of specialists, others ranged from six to twenty-nine men, plus office and clerical help. The builder contact men are usually trained housing experts or engineers qualified to help in making out preliminary plans and blueprints, giving advice on layout, design, sizing of equipment estimating, and, finally, helping to sell more gas-equipped homes.”

ing, and, finally, helping to sell more gas-equipped homes.

Many companies reported liberalization of their main extension policies, and a willingness to defer immediate returns on main extensions. This kind of liberalization is in line with a recommendation of the board of directors of the American Gas Association urging “re-evaluation of main-extension policies in order to secure the maximum economic number of new customers.”

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A FREE engineering survey for proper heating of the home, including a written estimate of operating costs and a comparison with other fuels, is offered in many areas. Utilities often consign gas-heating equipment to model homes and make no charge for gas used during the winter season. Trained gas company representatives are available to man the homes and to explain the advantages of gas heat to prospective buyers.

Home service department representa-

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tives put on cooking and laundry demonstrations in model homes, and answer consumers' questions about appliance operation.

Special promotional literature is provided for the use of the builder in circularizing prospects, and most of the major companies provide lawn signs and other displays calling attention to outstanding features—with emphasis, of course, on automatic gas appliances and equipment.

Special emphasis is placed on promotional tie-in efforts with builders of homes which utilize the entire family of gas appliances—homes which feature gas for cooking, water heating, refrigeration, heating and air conditioning, clothes drying, and incineration. In fact, several companies have men who specialize in all-gas home promotions, including planning and production of advertising and publicity, organization of materials for special newspaper sections and supplements.

This kind of utility activity sells a lot of houses. More important, it sells gas appliances and builds new gas load. The attendant publicity, in addition, directs the attention of entire communities to the modernity of gas appliances and the virtues of gas as a fuel.

OF course, this is but one phase of the industry's selling effort. The modernization market and the replacement market are getting similar sales treatment by gas companies, appliance manufacturers, and dealers. And the total effort is backed by the powerful national programs conducted by the American Gas Association and the Gas Appliance Manufacturers Association, as recommended by their

joint gas industry development committee in their program for action.

Perhaps the potency of this over-all effort can be judged by this excerpt from a recent editorial in a leading electric industry trade publication:

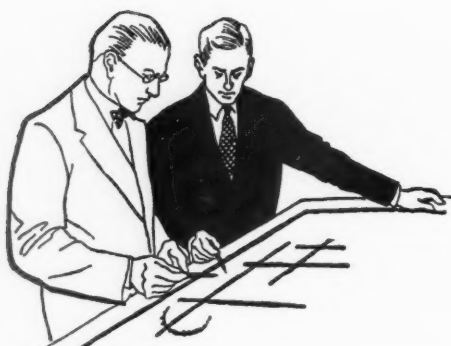
... the one area in which the electrical industry is fast losing ground to the gas industry and that area is the national promotion of gas as a fuel. Many individual manufacturers are doing a splendid job of promoting electric ranges and water heaters. And many individual electric utility companies are waging a stern fight to promote electric cooking and water-heating loads. But at the national level it is about time we admitted that the gas industry is running with the ball and taking the public spotlight away from us. This is curious because gas is the entrenched competition and electricity, only in recent years, has become an important challenger. Yet the gas people, far from being complacent, are waging the more spirited campaign to educate the public to use their fuel and appliances.

THE gas industry, too, has made great strides in its 140-year-old history, and age has not shortened its strides or slowed its pace.

It yields to no competitor at any level—local, regional, or national. It is a dynamic industry which has reached its highest peak and is headed for new highs.

It is an industry, we might say, aflame with the fire of youth, and guided by the wisdom of experience.

In fact, we might well be called the youngest old industry on the American scene.



“Air Conditioning” Is Bigger Than We Think

The gas industry is going out after the gas air-conditioning load—a rich prize now largely held by the electric industry. It is coveted especially because of its summer seasonal balancing feature against high winter peaks which plague the gas utilities even more than the electric companies.

By JAMES H. COLLINS*

SUDDENLY, a new business contest has arisen between those old utility antagonists, electricity and gas, in something called the “heat load.”

It exploded in the form of a little gadget that appeared to be just one more electrical appliance—the room air cooler. But some very hot summer weather over the United States led the public to discover this device, and buy it out, and get a taste of controlled climate, of which ever since it has wanted more and more.

In the electrical industry the room cooler brought such a sharp, short peak of summer demand that there seemed to be no end of trouble supplying it. Neither

equipment nor capital is amply available to meet the potential; and thus far only a small percentage of electrical customers are equipped for cooling on a room basis. When more of them have coolers, and the whole house is cooled, the summer peak will be something tremendous.

So, the electrical industry is turning to another device, the “heat pump,” to bring back balance in its year’s business. The heat pump is spectacular, freezing the heat out of air to cool the house in summer, and extracting heat from the air, or water, or the ground, to warm the house in winter. Its interest for the public is obvious. At present it is expensive, but there is no doubt about it being eventually brought down to a popular price in some areas.

*Professional writer, resident in Hollywood, California. For additional note, see “Pages with the Editors.”

"AIR CONDITIONING" IS BIGGER THAN WE THINK

THIS makes the gas industry's great winter load for house heating very attractive to the electrical fellows. Traditionally, they have rather sympathized with gas for being saddled with such an abnormal demand, usually short, and not always appearing if the winter is warm. "Let them have it—we don't want the heat load," the electrical men have said.

Now, with the heat pump, they need heat load, and want it—say they must have it. And in the gas industry this sudden, compulsory interest in its heat load might be compared to the attentions of a glamour boy, paid to the pretty young wife of a substantial citizen. Gas is concerned, and taking steps to protect its winter business, and its appliance manufacturers have gone into research to develop equipment that will cool as well as heat.

Gas has an intensified peak, too. For extension of natural gas pipelines to serve the great industrial centers has built up the winter load to such an extent that old oil fields are being rejuvenated in eastern states to store gas underground. This is expensive, but not so much so as building additional pipelines to take care of the short winter heating loads. Gas also needs cooling business for balance.

In a way, both utilities appear to have a bear by the tail, maybe the same bear. To anybody familiar with both industries, and their past wars, hot and cold, the situation is not terrifying. They have always fought tooth and nail, and have always come out stronger. This may be a bigger scrap, but there is reason to believe that the outcome will be the same.

It may be interesting, and reassuring, to look into the past of "air conditioning," or "climate control," and see that it is a very fundamental and American thing, and, at

this present stage, probably a major new American industry.

FORTY years ago there appeared a book, *Civilization and Climate*, by Ellsworth Huntington, the geographer, who developed the view that strong, progressive nations were made by temperate climate. He marshaled evidence from climate conditions matched against inventiveness, productiveness, and wealth, and very convincingly showed that localities like Europe, the United States, and temperate lands like those of Inca Peru and Mexico, bring out the full abilities of man, and that he does not do very well in hot localities, like India and Africa.

Huntington decided that men feel inclined to be more active physically when the thermometer is about 60, or between 55 and 70. That was point No. 1. And his second point was that men's brains work best when there is an outdoor temperature of about 40. He developed a third point—that with a moist, temperate climate, men are at their best for a change of weather every few days. Changes wake men up, make them want to do things.

Great cities are built in temperate climates, because weather gives men the push, imagination, and will to build them. The very schoolchildren in a temperate locality excel those in an enervating climate, which he proved by statistics of the percentage going on to high school in different states.

ENTHUSIASTIC support was given this view by Vilhjalmur Stefansson, the arctic explorer and champion. Stefansson was of Icelandic stock, and maintained that Iceland proved Huntington right. Its capital, Reykjavik, has an aver-

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age winter temperature of 32, a summer temperature of 48, and is never far from Huntington's ideal average of 40. Iceland is six-sevenths bare lava, has no coal, no forests, raises only a little hay, some potatoes and turnips. Yet on pasture the Icelanders have established a magnificent sheep and cattle industry, and on the ocean a fish business with profitable exports.

All this he credited to the stimulating character of the climate. The original energetic Norwegian stock died out hundreds of years ago, but the climate maintained its energy. Iceland has no illiteracy; its people read books in Danish, German, English, and French, though not having speaking command of those languages; they are literary creators, and have produced men of genius.

Similar evidences of climate influence were found by Huntington in isolated areas like Alaska, where the Indians had expressed themselves in arts such as that of totem poles, inspired by the cool climate.

WHEN Huntington made his studies and wrote his book, nothing was known of air conditioning. There were almost no electrical appliances. Therefore, he looked into the future from the standpoint of the facts he had, and ventured

predictions that some day whole populations might be moved, with the seasons, from one favorable climate to another, and thus increase productivity by providing a year of stimulating temperature, moisture, and change.

This was not for comfort, or escaping the short hot weather of some localities, or the handicapping cold and snow of other regions, but for efficiency in working—for productivity.

THIRTY years ago in a book, *North America*, another geographer, J. Russell Smith, examined the United States, Mexico, the West Indies, and Central America from this standpoint of efficient climates for industry, commerce, and agriculture, and frequently quoted Huntington's three specifications of temperature and change.

There were still no air-conditioning appliances, but Smith maintained that, as a theoretical proposition, we would be able in time to build large residential structures in the tropics, where people could sleep and spend two-thirds of the day, and motor out to plantations for work. Eight or ten hours in the tropical heat would be nullified by temperate living conditions the rest of the day. He saw no technical difficulty in putting whole towns under one



“UTILITY company support of the appliance industry has not been too enthusiastic, basically because utility sales departments have not been cultivated and as aggressively managed as those in the competitive utility. Two conflicting policies are blamed for gas sales problems: some gas companies selling appliances themselves, and others building strong appliance dealer organizations. This is a sort of two-stool proposition, where some companies are undecided about policy, and may not put selling ‘umph’ behind appliances.”

"AIR CONDITIONING" IS BIGGER THAN WE THINK

roof, though nobody then had any idea of how it might be done.

"Great things await us," he said, "if we can keep up the supply of brains, kindness, and constructive imagination. Mr. Huntington is right, there must be some degrees of temperature and humidity that give more human effectiveness than others, and if he has not found them, we are able to find them by experimentation."

Now, with climate control a fact, it is not necessary to move working populations. Wherever the people are, blow hot, blow cold, on the job, or at home, they have only to specify their climate, chart the natural disadvantages of their region, and the utilities will do the rest.

With vistas like that opening up into the future, the present agitation over the heat load, who is going to take or keep it, seems like the argument of two strange bulldogs over a bone. The prospects are more important than the bone.

This heat load argument is transitory, but it has served the useful purpose of getting the gas industry to make a searching self-appraisal. A survey of ten test cities by an outside research organization has shown general weaknesses that must be overcome in the utility and appliance manufacturing branches of gas.

Gas has considerable need of large-scale research and manufacturing organizations, corresponding to the major electrical appliance companies. Its appliance manufacturers are vulnerable to price competition.

Utility company support of the appliance industry has not been too enthusiastic, basically because utility sales departments have not been cultivated and as aggressively managed as those in the

competitive utility. Two conflicting policies are blamed for gas sales problems: some gas companies selling appliances themselves, and others building strong appliance dealer organizations. This is a sort of two-stool proposition, where some companies are undecided about policy, and may not put selling "umph" behind appliances.

Then, utility companies are sometimes hampered by lack of information as to who is selling what appliances in their territory; such information is necessary in planning strong advertising and promotion programs.

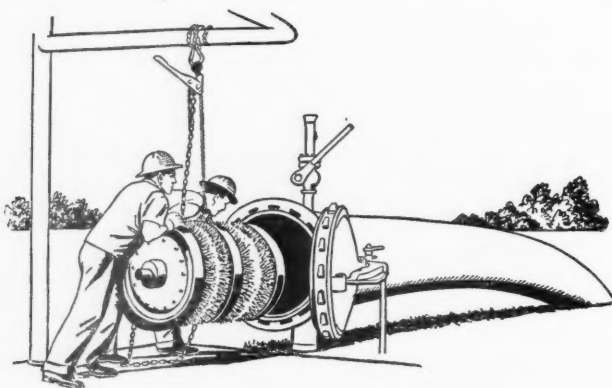
THE Paul Revere of this contest has already ridden over the countryside, stirring up the embattled farmers, in the person of Sheldon Coleman, a gas appliance manufacturer. He is president of the Coleman Co., Inc., Wichita, Kansas, and a year ago, at the American Gas Association convention, he warned that the redcoats, in all their might, are coming after gas' heat load.

During the next five years many millions of dollars will go into electrical heat pump research, to bring it down in cost, and into mass production.

Atomic energy of the breeder type is likely to supply one- to two-cent electricity to all parts of the United States. When this will be achieved is not yet clear, but judging by progress the past fifteen years, it might come sooner than is thought.

Electrical companies can be expected, under the pressure of their fantastic new air-conditioning load in summer, to offer attractive rates for all-year-round cooling and heating.

Add predicted sales of a million heat pumps yearly, made by the electrical ap-



Appraising the Heat Load

“Now, with climate control a fact, it is not necessary to move working populations. Wherever the people are, blow hot, blow cold, on the job, or at home, they have only to specify their climate, chart the natural disadvantages of their region, and the utilities will do the rest. With vistas like that opening up into the future, the present agitation over the heat load, who is going to take or keep it, seems like the argument of two strange bulldogs over a bone. The prospects are more important than the bone. This heat load argument is transitory, but it has served the useful purpose of getting the gas industry to make a searching self-appraisal.”

pliance industry, and it is certain that the redcoats have left Boston.

Natural gas pipelines have been built on the heating load, and could not exist without it. House heating in large volume is vitally necessary to the gas utilities, and becoming their major field of growth.

WHAT can the gas industry do? Two things, says Mr. Coleman.

First, develop an all-gas heat pump that cools in summer, heats in winter, using gas to supply the additional heat needed in most cold areas.

Second, who is going to develop such device? The gas appliance manufacturers have not enough money to finance research, which might require a million dollars spent over the next four years, and which would be better for double that amount, or more, in view of the way research is carried on by competitors.

A gas heat pump is perfectly feasible, in fact already exists. Climate control is simply refrigeration, reversed for heating. Power can be supplied by a gas engine of internal combustion, external combustion,

"AIR CONDITIONING" IS BIGGER THAN WE THINK

or thermal types. Coleman maintains that an efficient gas heat pump can have attractive cost advantages, competing with electricity at even less than one cent per kilowatt.

Moreover, in many areas, such a device could be combined with conventional gas furnaces in homes, giving a year-round load for the utility companies and for the gas appliance manufacturer.

THIS year, Mr. Coleman's company is testing his own company's gas motor climate conditioner, in co-operation with utility companies, and expects to obtain data that will permit final modification of the design for actual marketing next year. The Coleman device, mounted on top of a hot-air furnace, cools air for piping through the regular heating ducts. The units under test are designed for the mass residence market, three- and five-ton capacity; will cost about 20 per cent more than comparable electrical units, but will have lower operating costs to cancel the difference. With natural gas at 70 cents per thousand feet, the operating cost is estimated at one-half that for an electrical unit running on two-cent current. Complete automatic operation has been built into the device, which has 2,000 hours' capacity between seasonal overhauls, and 10,000 hours between major overhauls. Other companies are working with Coleman on the gas motor, compressor, and controls.

Other manufacturers are active in gas climate control equipment. Servel, Inc., has a three-ton unit for medium-cost homes that heats, cools, dries, and humidifies the air, as required. The A. O. Smith Corporation is reported to have spent \$30,000,000 on gas refrigeration re-

search since 1927, and this research is now being directed into gas-fired air-conditioning channels. The Institute of Boiler and Radiator Manufacturers Research reports that a thousand-dollar installation for medium-priced homes has been developed, integrating a chilled-water cooling system with forced hot air or steam heating. There are numerous other concerns active in gas climate control development—names like Carrier, Worthington, York, Airesearch, Wood Electric, Corbell Industries, Solar Aircraft, and others crop up in the technical news.

AND utility companies are getting behind the movement with promotion, though large production is still some years ahead. Next year will see progress to hundreds, not thousands of units, according to Sheldon Coleman, with sharply increased production by 1957.

As utility companies get into promotion they discover that local conditions play a great part in their market. It may be that marketing will require as much research and experiment as the engineering phases.

For example, Southern California has two aggressive gas companies, and they are advertising and promoting Servel cooling-heating units. But the region has very little enervating hot weather, and only short spells of cold weather, and thus far sales have not been spectacular. But that may be due to the newness of such equipment, or to promotion methods—maybe a good job has not been done, say executives, and the promotion continues.

In contrast, there is Texas, with hot weather up toward 100, six months in the year, where the outstanding gas conditioning job has been done by one aggressive utility company. The Lone Star Gas Com-

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pany, with more than 690,000 customers in 424 Texas and Oklahoma communities, may well have things for other utility men to learn.

The only air-conditioned cattle barn in the world is in Texas, according to the trade journal *Gas*. It is cooled for humans, not the cattle, being an auction sale amphitheater. This utility company has since the war pioneered gas cooling, and combination systems, in factories, office buildings and other commercial structures, and is now equipping moderate-priced new homes with cooling units. Typical is a four-bedroom brick house, selling for \$13,500; by designing the house around the conditioning system, building economies are possible; the Servel cooling unit is motorless.

WHEN Henry Ford worked for the Detroit electric lighting company, in the mid-1880's, he tinkered at home with a gasoline engine. The only internal combustion engine at that time was the Otto engine, run on lighting gas. Not so long before, all the electricity that could then be sold in Detroit was generated by one Edison dynamo. The city was the principal customer, trying to light the town with arc lamps, atop 150-foot steel towers. So the single dynamo was at first operated only at night.

Ford's fellow workers tried to convince him that he was wasting his time—the coming age was to be the age of electricity. But Ford went right ahead, and attending an electrical convention in Atlantic City, found himself in the same room with Edison, who had made an address. Ford

thought he might as well get the opinion of "Mister Electricity" himself, and diffidently explained what he hoped to achieve.

Edison was immediately interested. He listened, and asked questions, and disregarding side issues, went straight to the main point.

"No one kind of motive power is going to do all the work of this country," he said. "There is a big future for any lightweight engine that can develop a high horsepower, and be self-contained. We do not know what electricity can do, but I take it for granted that it cannot do everything.

"Keep on with your engine—if you can get what you are after, I can see a great future."

IF some young inventor today were to ask Edison's opinion of a gas-fueled climate control device, it is not likely that "Mister Electricity" would pay much attention to who will take over the heat load. He would say that the job is too big for any one form of power.

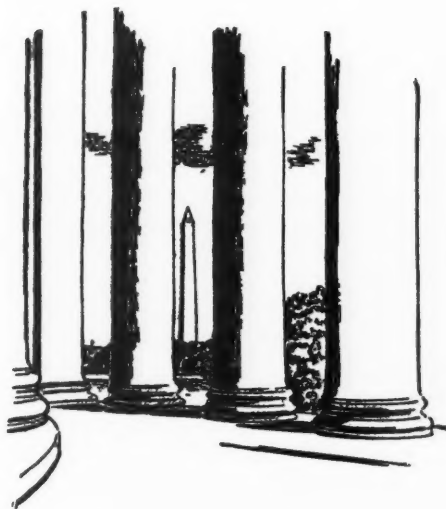
Curiously, Henry Ford was off on a side issue at that time.

A farm boy, he knew what plowing was—the biggest power job in the nation. He believed that the farmer would welcome a gasoline tractor to take over the plowing.

But it developed that what the farmer wanted was a horseless carriage to take him to town, one that he could afford to buy. That was what everybody wanted, and Ford opened up an inexhaustible market.

A generation later, he was able to sell a tractor to the farmer's son.

Washington and the Utilities



The "Power Trust" Again?

VETERAN Washington observers were carried back more than a quarter-century in memory when the O'Mahoney subcommittee of the Senate Judiciary Committee opened its hearings on the subject of possible monopolistic abuses in the electric power industry. Back in the pre-New Deal days of the late Senators Thomas Walsh of Montana and George Norris of Nebraska, the walls of the Senate echoed recurrently with the charge of "power trust." Like the ancient Roman Senator Cato, who daily called for the destruction of Carthage, Walsh, Norris, and others of like mind insisted that the "power trust" must be destroyed.

The Federal Trade Commission had already investigated and was unable to find any power trust. But at the direction of Congress it investigated again—for nearly eight years—and found enough complaints and abuses to make voluminous reports to Congress. These in turn formed the background of the Holding Company Act, which broke up the old holding companies, the largest one of which, incidentally, at no time controlled more than 11 per cent of the operating industry.

Nevertheless, the trust-busting job was supposed to have been done very thoroughly by the SEC, in carrying out the "death sentence," making little ones out of big ones. So, the latter-day suggestions that monopoly is once more rearing its ugly head in the electric utility industry may come as a surprise. Yet realistic Washington observers are not *too* surprised, in the light of the pattern for political action which seems to be unfolding so far in advance of the election campaign next year.

THE early sessions of the O'Mahoney subcommittee failed to produce anything more than an intrafamily argument involving the abortive attempt to merge Puget Sound Power & Light with the Washington Water Power Company. In an effort to show Wall Street banking relationship, the subcommittee heard from several investment banking people who were active in a volunteer "stockholders' committee" trying to drum up support among Puget Sound stockholders in opposition to Puget Sound's own management decision to drop the merger.

When it was brought out that several

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of these stockholder committeemen were not stockholders themselves, the Wyoming Senator O'Mahoney expressed his opinion that this was improper. But the SEC had already fielded that one by ordering the committee to withdraw its circular letters because they were not in the approved proxy form.

A good many other people might feel that members of volunteer stockholder committees ought to be stockholders themselves or at least explain that they are not. But just what this has to do with the general welfare or over-all political economy of the nation for which Congress could be expected to legislate is not clear. After getting through these early sessions of fairly small potatoes, the O'Mahoney committee was slated to go into more controversial stuff—the Hell's Canyon case and the relationship of private electric companies interested in that development with investment banking interests and national utility service organizations.

The rôle of the Federal Power Commission and the policies of the Interior Department, especially with respect to the "preference clause" of the public power legislation are all due for a critical going over.

WITH Senator O'Mahoney firmly in the saddle, not only as subcommittee chairman but also as a member of the Interior Affairs Committee, the hearings are tinged with party politics. Senator Dirksen of Illinois was on hand to watch out for the minority interests. But he said little and seemed somewhat bored. The sensational charges handed out as a prelude to the subcommittee sessions—hinting that some small, hand-picked group of "managers" was trying to tie up the electric utility industry in bonds of monopolistic control had a distinct campaign aroma. Democratic Chairman Paul Butler has

made no secret of his party's determination to build up a major issue out of the Eisenhower administration's alleged sympathy with the utilities and big business generally.

House Majority Leader McCormack's blast at the Air Force's contract with the telephone companies over SAGE, the electronic alerting equipment (see *post* page 658), and the recurrent sniping at the defunct Dixon-Yates and the still pending gas producers' exemption legislation, all seem part of a broad antiutility barrage. Whether it will be politically effective is something else, but it is obviously in the making. For that matter, most of the "investigations" now being conducted during the congressional recess are probably and inescapably in the same category of precampaign propaganda now that the 1956 White House race seems likely to be a wide-open affair in view of the bad news from Denver.

Gas Bill Agitation

THE Tennessee Public Service Commission has filed 16 complaints with the FPC alleging "unreasonable" natural gas producer prices. With this action, Tennessee, in effect, joins the Wisconsin Public Service Commission and others in an attack on the Harris Bill (HR 6645), to exempt independent producers from FPC control. The Tennessee commission sent copies of its complaints to the public utility commissions in 17 states, inviting them to join as interveners in the case. The invitations went to regulatory bodies throughout the Tennessee Gas Transmission Company's service area.

The Tennessee commission doubtless hopes, by this action, to prod FPC into prompt and full exercise of its authority to regulate rates charged by natural gas producers, as established by the Phillips

WASHINGTON AND THE UTILITIES

Petroleum Company decision of the U. S. Supreme Court. Specifically, the Tennessee commission seeks an investigation of natural gas rates charged by 16 companies, including Phillips, for gas sold to Tennessee Gas Transmission. This development may prove to be the "opening gun" in the so-called "consumer state" effort to block congressional passage of the Harris Bill at the next session.

Prompt passage of the Harris Bill was urged last month at the Independent Natural Gas Association convention in Jasper, Alberta. W. E. Mueller, president of Colorado Interstate Gas Company, told the meeting that the rate base methods used by the FPC in the Panhandle Eastern decision (3 PUR3d 396) and the controversy over the Harris Bill focused attention on the industry's fundamental problem. Mueller noted that the original cost rate base method of pricing production prior to the Panhandle Case discouraged the acquisition of reserves by both established and new transmission companies. For the same reasons, he said, the same type of regulation should not be applied to the independent producer.

"Just as certainly as pipeline-owned supply has diminished, so will the present really important supply now owned by independent producers diminish year by year if the rate base method of regulation is applied to it," Mueller said.

THE effort of the Tennessee and other "consumer state" commissions to needle the FPC into more aggressive and complete assertion of its jurisdiction over the gas producers would hardly seem to be necessary in the light of several recent decisions of the commission involving aspects of such jurisdiction. Two of these decisions involved natural gas sales made by independent producers for gas deliveries at intermediate points prior to the

completion of the entire production and gathering process. In this field, the FPC issued two opinions—one affirming a decision by Chief Presiding Examiner E. B. Marsh, holding that by such sales of natural gas, Deep South Oil Company, Humble Oil & Refining Company, and Shell Oil Company were subject to regulation. The other, the Dixie Pipe Line Company Case, reversed another FPC examiner who dismissed "for want of jurisdiction" some twenty independent producer applications for natural gas sales certificates.

FPC held that each of the three producers (Deep South, Humble, and Shell) is engaged in the sale of natural gas for resale in interstate commerce and is, therefore, a natural gas company under the provisions of the Natural Gas Act. The companies contended, unsuccessfully, that their sales are not in interstate commerce and that even if they were they would be exempt under § 1(b) of the act.

Later last month an FPC examiner's opinion (by Chief Examiner Marsh) took what appeared to be the ultimate step in asserting FPC jurisdiction over natural gas production, even where attempts are made to abandon the delivery of such gas to pipelines for interstate service. This decision, in the case of the Skelly Oil Company of Tulsa, Oklahoma, goes even further than the decision by the FPC in the cases involving the Deep South Oil Company, Humble Oil & Refining Company, and Shell Oil Company.

THE examiner's opinion in the Skelly Case, however, involved a clean-cut test of the right of an intrastate producer to terminate deliveries of gas to a pipeline company under the express provision of a so-called escape clause, *specifically authorizing the cancellation of further deliveries in the event the FPC or any other federal agency asserted jurisdiction over the sale.*



The "SAGE" Attack

HOUSE Majority Leader McCormack's bitter attack on the Air Force's arrangements with the telephone companies over the financing of the automatic alerting device installations, known as "SAGE," came somewhat as a surprise, considering the bitter tone used. The contracts setting in motion a \$2.4 billion air defense communications leasing arrangement with the Bell system, already had been called into question by Comptroller General Campbell for reasons of pure legal formality. Campbell did not dispute the merits of the plan, the need for it, nor the propriety of the arrangement. He simply raised the point that because of the leasing expenses whereby the property installations would remain or eventually become part of the telephone company system, specific authority from Congress should be obtained before the Army used defense appropriations for that purpose.

The Bell system explanation was simply to the effect that telephone companies were making operating services available—at the request of the Defense Department—on the same terms and at the same rates generally available to telephone subscribers. Such rates, it was pointed out, are subject to supervision and regulation by federal and state commissions. Western

Wire and Wireless Communication

Electric, in a separate explanation, pointed out that it had been engaged by the Air Force through June of 1956 to co-ordinate engineering and administrative work during the construction period of the SAGE project. It is responsible for work subcontracted, totaling more than \$30,000,000. Its fee for all these services is \$428,500. The company's previous experience with contracts of this nature would indicate that the final profit, if any, would be small.

BUT Representative McCormack, by virtue of his party leadership, as well as the sharp language used in his attack, seemed to be seeking to make a political issue out of the matter. Reminiscent of the partisan barrage on the now defunct Dixon-Yates contract (to which McCormack compared the Air Force-Bell system contracts), McCormack spoke of a "bonanza" for big business and an administration attempt to "bypass" Congress. He called the whole thing "shocking."

Chairman Cannon (Democrat, Missouri) subsequently indicated that his House Appropriations Committee would investigate the disputed contracts. Meanwhile, the Air Force complained that the whole matter had been given wide publicity and had been specifically brought

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forth in congressional hearings June 2nd. The Air Force indicated that it would seek reconsideration of the Comptroller General's action and had some assurance that such a plea would be considered. Incidentally, the contracts were agreed upon while former Secretary Talbott was head of the Air Force and prior to the installation of the present chief of that service, Secretary Quarles—who happens to be a former career vice president of Western Electric, now retired.

The Air Force plan calls for a gradual switchover from manual operation of the radar stations that guard U. S. bombers to "semiautomatic ground equipment" (SAGE). The telephone companies are to install special circuits to feed information from the radar that picks up the planes to control centers and back to strategically located fighter planes, antiaircraft guns, or guided missile launching stations.

When the vast communications setup is completed, the Air Force estimates, it will cost as much as \$240,000,000 annually to run it. The equipment, according to the plan, will be financed, built, and installed by the telephone companies. They will then lease it to the Air Force.

THE Air Force as of September 21st has signed only two contracts, committing itself to a payment of about \$4,000,000 to \$6,000,000 a year, beginning late in 1957. Contracts for seven additional communications installations are expected to be awarded in the near future. Air Force officials claim they have adequate legal authority for going ahead with the contracts and note that no large payments will be required until 1958 or 1959.

The size of the Air Force program, according to Comptroller General Campbell, places the SAGE contracts "clearly outside the scope of ordinary utility service purchases." Furthermore, he noted, the Air Force contracts commit the govern-

ment to certain contingent liabilities in case it backs out before they are completed. In any case, he added, the Air Force was in no way permitted to "authorize contracts or commitments for any program or activity not already approved" by Congress. A program of "such magnitude" and "so plainly distinguishable" from ordinary public utility services requires "specific authorization" by Congress, he stated.

Union Studies Public Ownership

IMPLEMENTING a resolution adopted at the last national convention of the CIO Communications Workers of America, the head of that union, President Joseph A. Beirne, has announced the formation of a board to study the relative merits of "public as opposed to private ownership" of telephone facilities in the United States and Canada.

CWA claims to represent telephone operating membership in 46 of the 48 states and the District of Columbia (mostly Bell system companies), three Canadian provinces, and Hawaii. CWA membership is concentrated mainly in Bell system companies. The union holds contracts with only one government-owned system, Saskatchewan Government Telephones.

Commenting on his board's action, President Beirne said:

I personally have always favored private ownership of telephone facilities. However, I have recently returned from a world-wide meeting of the Postal Telephone and Telegraph International, a confederation of unions of workers serving communications operations throughout the free world. In all countries but ours, the communications system is government owned and operated.



Financial News and Comment

By OWEN ELY

Trends in the Gas Industry

THE 272-page annual AGA statistical handbook recently became available, containing considerable new material. A much smaller "Gas Data Book" containing "brief excerpts" from *Gas Facts* is also available—22 pages in pocket size. Among the new features of the larger book are separate income statements and balance sheets for pipeline companies alone, from 1941 to 1954; data on exploratory drilling for natural gas; and details of appliance shipments by size, type of unit, and month of the year. The new edition also includes a table showing, for selected cities, the cost (in cents per million Btu) of various residential heating fuels since 1941, together with suggested fuel efficiency factors.

The table showing the average wellhead price of gas, and the value at point of consumption is of special interest, but unfortunately 1953 is the latest year reported. Following are some of the salient figures:

Year	Average Wellhead Price (Cents Per Mcf)	Value at Point Of Consumption* (Cents Per Mcf)
1936	5.5	22
1940	4.5	22
1945	4.9	21
1950	6.5	27
1953	9.2	36

*Determined by dividing sales volume into revenues.

During the postwar period 1945-53, the wellhead price advanced 88 per cent, while the value at the point of consumption increased 71 per cent.

It is a little difficult to reconcile the latter figure with the postwar change in the index of the retail price of gas, which advanced only from 97 per cent in 1945 to 109 per cent in 1954, or an increase of 12 per cent. Also, the indexes of net monthly retail gas bills show relatively small changes in the postwar period. Probably the disparity is due to the inclusion of industrial sales in the "value at point of consumption," whereas the other figures only refer to certain classes of residential consumption. In view of recent political publicity (in connection with the Harris Bill) over the residential consumer bearing the brunt of higher wellhead gas prices, it would appear worth while to publicize the indexes of residential bills, etc. For

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small bills (10-10.6 therms) the cost was about 6 per cent lower at the end of 1954 than in 1945 and 20 per cent lower than in 1932.

Turning to the table showing the relative uses of different sources of energy supply in the United States, it is obvious that natural gas and oil are rapidly supplanting coal, possibly due to the greater labor costs of producing coal, as well as the technological gains in the production of oil and gas. The table below shows percentages of annual energy supply allocated to different factors, for selected years.

Oil and gas are produced under similar conditions and frequently from the same wells (about two-thirds of natural gas is obtained from gas wells and one-third from oil wells) and have enjoyed similar gains, while the two branches of the coal industry have both declined sharply. The contribution by water power remains rather unimportant as an energy source, despite the great importance attributed to it in political circles.

ESTIMATED proven reserves of natural gas at the end of 1954 approximated 212 trillion cubic feet compared with 148 trillion a decade ago at the end of World War II. Production last year was 9.4 trillion cubic feet. The number of new well completions continued to gain with nearly 4,000 gas wells brought in last year, of which about 36 per cent were dry. Wildcatters drilled 10,815 wells, of which nearly 87 per cent were dry.

The average gas pipeline company last year produced about 15 per cent of its

product and bought 85 per cent. The industry continued to expand its miles of main line, building some 26,000 miles of natural gas pipeline of which 15,000 were in distributing lines, 9,000 in transmission, and 2,000 in field and gathering lines. The industry also continued to expand the number of underground storage pools, the estimated ultimate capacity of 172 pools in 17 states approximating 1.9 trillion cubic feet.

During 1954 the retail section of the natural gas industry made rapid sales progress, as indicated by the following percentage gains over 1953 (some of the gains were at the expense of manufactured and mixed gas, due to the continued conversion from manufactured to natural gas):

	Cus- tomers	Sales	Reve- nues
Residential	7%	11%	16%
Commercial	7	10	15
Industrial	11	9	13
Total, Including Other Sales	7	9	15

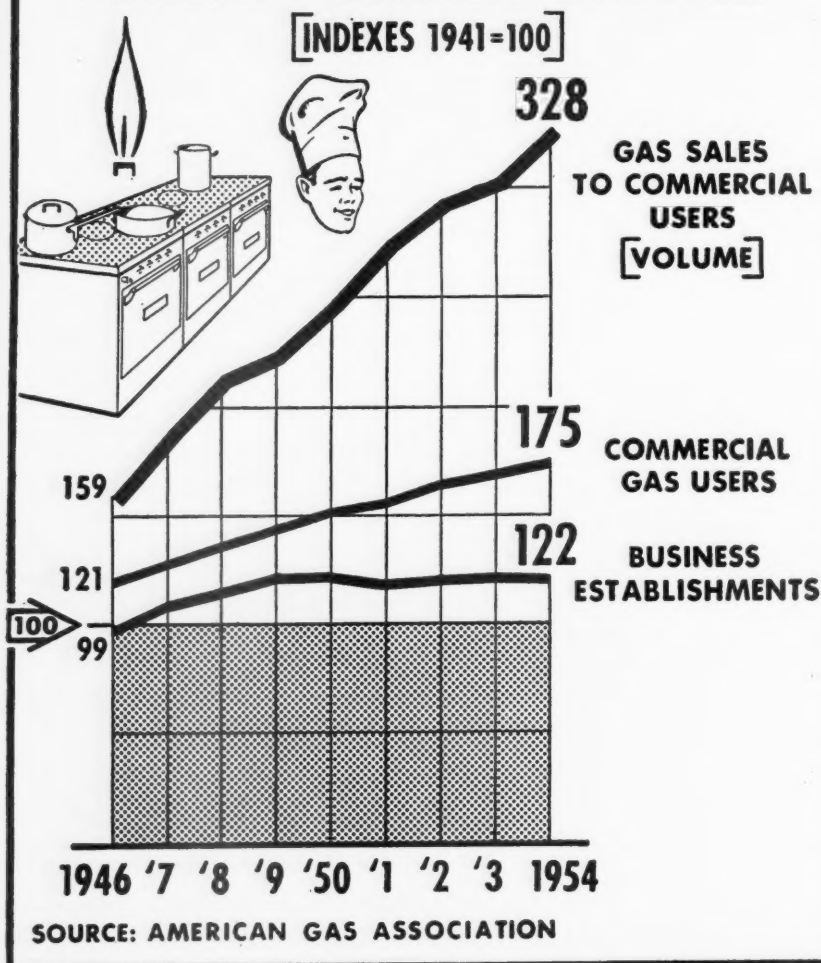
The industry continued to press the sale of gas for house-heating purposes. Saturation varied considerably, ranging from 8 per cent in New England and 21 per cent in the Middle Atlantic area to as high as 94 per cent in the far western area. All areas continued to gain, but naturally the best gains were in the areas with the smallest saturation. The sale of water heaters outstripped that of ranges for the first time, 2,281,000 heaters being sold as compared with 2,023,000 ranges.

PART of the gas utility industry is still struggling to obtain additional gas



Year	Natural Gas	Petroleum	Bituminous Coal, Etc.	Anthracite Coal	Water Power
1900	3%	5%	71%	18%	3%
1920	4	15	68	10	3
1945	13	32	47	4	4
1953	23	40	31	2	4
1954	25	42	27	2	4

COMMERCIAL GAS USE EXCEEDS NATION'S BUSINESS GROWTH



IN the postwar period the number of commercial gas customers in the United States rose at a faster rate than retail business establishments. Volume of commercial gas sales has tripled since 1941. Much of this utility gas growth was in the food service field, which has become the nation's fourth largest industry. Americans spend more than \$15 billion per year on meals consumed outside the home. Nine out of ten of these meals are cooked with gas.

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from southern and mid-continent wells in order to supply an unfilled backlog of house-heating demand. Other utilities, particularly along the eastern seaboard where competing fuels can come in by boat with resulting lower prices, must continue to fight strenuously to expand gas sales against this competition. These companies stress the advantages of a "clean fuel" and avoidance of service charges involved in use of oil.

IN the New York metropolitan area, Brooklyn Union Gas has reduced rates for heating sharply, and is making good progress. Long Island Lighting has made smaller reductions but has started an active promotional campaign. Consolidated Edison, which has been converting its customers gradually to natural gas, is now getting its house-heating campaign into high gear, using home movies "to reach the Joneses with whom everybody keeps up." A little over a year ago, according to *The New York Times*, Con Edison set out to find out who the "Jones families" were in each area. Young women were sent out to ring doorbells and locate the leaders in each block. The next step was to ask these local leaders, "The Joneses," to sponsor picture parties for at least ten guests in their home, the company supplying the movies and an operator plus the makings for a party—the hostess being rewarded with an electric frying pan or a check for her favorite charity. Since April, 762 out of a scheduled 1,200 parties have been held. In Westchester, three out of four new homes are now being equipped with gas heating, and in the entire service area about seven out of ten. The number of Con Ed's new gas heat customers this year will exceed last year's by about 50 per cent—perhaps reflecting the benefits of the new psychological methods as compared with last year's con-

ventional advertising methods. The company expects a further increase if the public service commission approves its request for lower rates. (See page 680.)

THERE is naturally considerable friendly rivalry between the gas industry and the electric utilities over the development of heavy appliances for heating and cooling homes, electric ranges, and water heaters, etc. The long-term outlook for natural gas, as forecast by President Marvin Chandler of Northern Illinois Gas Company, was summarized in this department in the August 4th issue of the *FORTNIGHTLY*. Some of his figures on the relative costs of electricity and gas for heating purposes (conventional gas heating in his company's area *versus* the electric heat pump) have aroused some discussion but space is not available in this issue to cover the debate, which is largely of a technical nature.

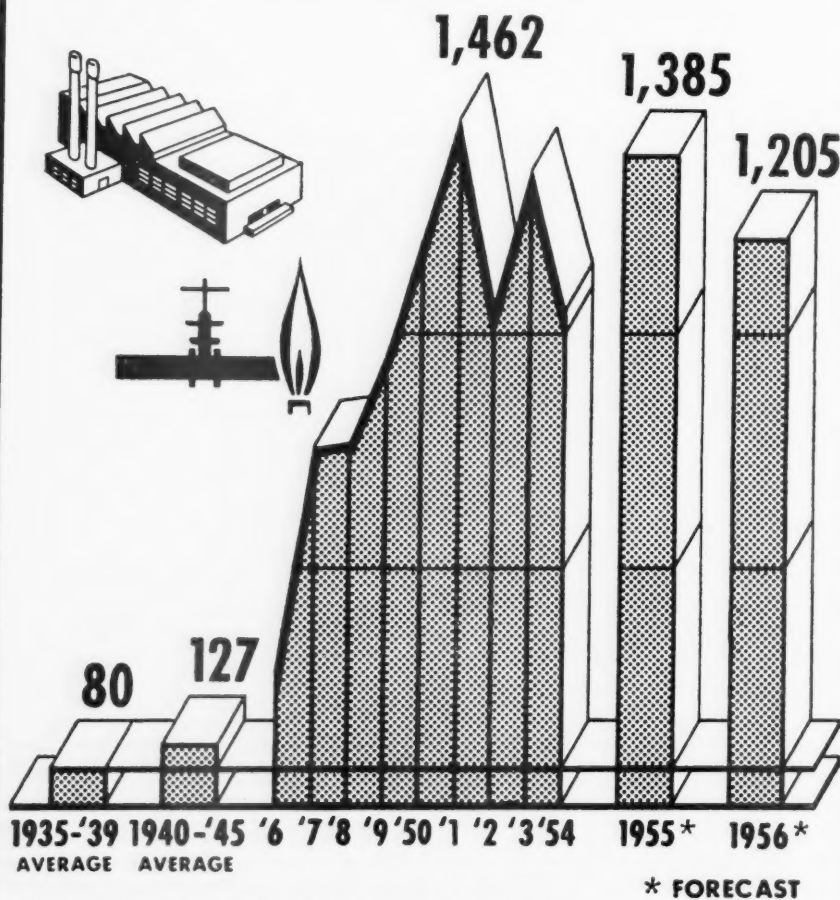
The gas industry is anxiously awaiting the development of a gas prototype of the electric heat pump (for combined central heating and cooling) and Servel, Inc., is said to be working on this.

ANOTHER interesting angle in the gas industry is the continued progress in reducing the cost of manufactured gas. In some areas such as New England, the price of natural gas is gradually rising while the cost of manufactured gas (net after by-products sales) has been steadily declining, so that the latter is now actually cheaper. Of course, this would not apply in the South and many other areas where it costs less to bring gas from southern wells. In any event, manufactured gas can no longer be "counted out" as a competitor of natural gas, particularly in view of the possible limits on the long-term supply of natural gas. Hall Henry, vice president of Worcester Gas Light Company

GAS INDUSTRY EXPANSION

NEW CONSTRUCTION EXPENDITURES

MILLIONS OF DOLLARS



SOURCE: AMERICAN GAS ASSOCIATION

SINCE World War II expansion of the gas industry has averaged nearly one billion dollars per year, or 10 times the rate of pre-war development. As a result of this expansion, an average of 900,000 new customers per year have been added to utility gas lines which now serve more than 28 million users in the United States.

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(in the New England Gas & Electric System) and a recognized research authority in the field, recently gave an address before the New York Society of Security Analysts in which he described a number of promising research projects now being conducted by AGA and some of the gas companies. He anticipated still further progress and envisaged the possibility that in future decades the industry might again turn to manufactured gas on a large scale, possibly with plants located at coal mines.

It is unfortunate that conditions in the gas industry, unlike those in the electric industry, vary so widely in different cities and areas, which makes it difficult to generalize. The "Gas Data Book" gives 1954 relative costs (in cents per million Btu) as follows for competing fuels in different cities:

	Bituminous Coal	Fuel Oil	Gas
Atlanta	62¢	—	58¢
Cincinnati	62	—	70
Cleveland	70	—	57
Detroit	69	107	80
Houston	—	—	55
Kansas City	41	98	56
Los Angeles	—	—	56
Minneapolis	88	98	76
Pittsburgh	42	—	56
Portland, Ore. ..	96	101	159
St. Louis	65	—	76
San Francisco ..	—	—	46
Washington	—	105	113

SINCE 1935 the price of bituminous coal has risen 119 per cent in price, fuel oil 126 per cent, and natural gas only 8 per cent, according to the Bureau of Labor indexes of retail prices (applicable to wage earners and lower salaried workers in large cities). These basic price trends in competing fuels were what has given the gas industry its great impetus in the postwar period, when coal and oil reflected inflationary trends and gas became available in many new areas through the construction of new pipelines.

Whether the industry can maintain its

present growth tempo may depend somewhat on Congress' final action on the Harris Bill or similar legislation early next year, as well as the progress by regulatory agencies in reducing regulatory lag on rate adjustments. Last year (according to data in *Gas Facts*) the industry was able to take less than 10 per cent of gross to net income compared with nearly 14½ per cent in 1950. Earnings of natural gas distributing utilities were at the rate of about 5.1 per cent on gross plant value, as compared with only 4.7 per cent in the year before and as high as 6.5 per cent in 1950. Transmission companies earned 5.1 per cent in 1954, the same as in the previous year.

THE industry continues to plan for substantial additional construction. Expenditures by utility and pipeline companies reached a peak of \$1,462,000,000 in 1951 but declined sharply in the following year, and in 1954 amounted to only \$1,055,000,000. Estimated expenditures for 1955 are \$1,385,000,000, which figure may be broken down as follows:

	Millions	Per Cent
Production and Other Storage	\$ 92	7%
Transmission	725	52
Underground Storage	74	5
Distribution	441	32
General	53	4
Total	\$1,385	100%

So far as the industry can foresee, with construction of major new pipelines now tapering off, over-all expenditures for later years are estimated as follows: 1956, \$1,205,000,000; 1957, \$974,000,000; and 1958, \$751,000,000.

THE gas industry estimates future gas requirements (based on anticipated sales gains) as follows, in therms: Space-heating requirements are expected to in-

PUBLIC UTILITIES FORTNIGHTLY

crease nearly 26 per cent during 1955-58, although peak requirements will be up only 23 per cent. Other residential requirements (a little over half of heating gas) should gain about 14 per cent in the three-year period. Commercial sales may increase 16 per cent and peak requirements 19. Firm industrial and miscellaneous business should grow 14 per cent and peak loads about the same. Interruptible sales and company use would increase only slightly, due to the greater use of gas for summer storage.

The figures on gas utility financing presented in *Gas Facts* are a little difficult to interpret, because some of the tables include an admixture of electric utility construction financing. Perhaps the table most representative of the straight gas industry is that on page 174 for "All Selected Gas Operating Companies." However, these figures include a substantial amount of refunding operations. The "new-money" financing of straight gas companies in 1954, as reported by the Irving Trust Company, totaled \$705,000,000 as follows:

<i>Bonds</i>	—Sold to Public	\$414,263,000
	—Sold Privately	218,560,000
	<i>Preferred</i> —Sold to Public	28,708,000

<i>Common</i>	—Sold Privately	3,644,000
	—Offered to Stockholders	6,749,000
	—Sold to Public	7,684,000
	—Offered to Stockholders	25,564,000
		<hr/> \$705,172,000

In the first eight months of 1955, new-money financing as reported by Irving Trust totaled \$677,000,000, so that this year's financing (which includes raising of funds for two major pipelines) should considerably exceed last year's.

Natural Gas Earnings

THE 37 pipeline companies for which the FPC reports aggregate earnings made an excellent report for the month of June, with revenues up 22 per cent and net income 36 per cent. The sharp increase in revenues may reflect larger amounts of gas going into storage during the summer months, as well as rate increases. For the twelve months ended June 30th gains were more moderate, revenues being up about 15 per cent and net income 14 per cent. A balance sheet item of interest was the increase of 17 per cent in the reserve for depreciation and amortization, compared with a gain of only 9 per cent in gas utility plant.

RECENT FINANCIAL DATA ON GAS UTILITY STOCKS

1954 Rev. (Mill.)			9/21/55 Price About	Divi- dend Rate	Approx. Yield	— Share Earnings* —			Price- Earnings Ratio	Div. Pay- out	Approx. Com. Stock Equity
						Cur- rent Period	% In- crease	12 Mos. Ended			
Pipelines											
\$ 4	O	Alabama-Tenn. Nat. Gas	20	\$.60	3.0%	\$1.65	20%	June	12.1	36%	42%
14	O	East. Tenn. Nat. Gas	11	.60	5.5	.58	41	June	19.0	103	14
44	S	Mississippi Riv. Fuel	29	1.40	4.8	1.83	9	June	15.8	77	54
48	S	Southern Nat. Gas	34	1.60	4.7	1.98	1	June	17.2	81	26
143	O	Tenn. Gas Trans.	42	1.40	3.3	2.01	14	June	20.9	70	20
150	O	Texas East. Trans.	30	1.40	4.7	1.74	NC	Mar.	17.2	80	23
68	O	Texas Gas Trans.	25	1.00#	4.0	1.63	7	June	15.3	61	27
63	O	Transcont. Gas P. L. ..	37	1.40	3.8	2.11	8	June	17.5	66	21
Averages					4.2%				16.9	72%	
Integrated Companies											
122	S	American Nat. Gas	59	\$2.20	3.7%	\$3.41	1%	June	17.3	65%	39%
30	O	Colo. Interstate Gas	64	1.25	2.0	3.49	76	June	18.3	36	29
260	S	Columbia Gas System ...	17	.90	5.3	1.11	39	June	15.3	81	42
9	O	Commonwealth Gas	7	(a)	4.0a	.55	15	Dec.	12.7	—	69

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10	A	Consol. Gas Util.	13	.75	5.8	.96	D16	Apr.	13.5	78	59
213	S	Consol. Nat. Gas	35	1.50	4.3	2.72	13	June	12.9	55	66
144	S	El Paso Nat. Gas	45	2.00	4.4	2.28	D10	June	19.7	88	22
34	S	Equitable Gas	28	1.40	5.0	1.93	5	June	14.5	73	31
12	O	Kansas-Nebr. Nat. Gas ..	38	1.20	3.2	1.30	D24	Dec.	—	92	32
78	S	Lone Star Gas	31	1.40	4.5	1.98	19	June	15.7	71	44
22	S	Montana-Dakota Utils. ..	29	1.00	3.4	1.36	7	June	21.3	74	31
18	O	Mountain Fuel Supply ..	30	1.20	4.0	1.61	10	June	18.6	75	59
64	S	National Fuel Gas	21	1.00	4.8	1.58	15	June	13.3	63	58
89	S	Northern Nat. Gas	43	2.00	4.7	3.23	35	June	13.3	62	33
37	S	Oklahoma Nat. Gas	23	1.20	5.2	1.76	20	July	13.1	68	32
87	S	Panhandle East, P. L.	79	3.00#	3.8	4.63	NC	June	17.1	65	34
10	O	Pennsylvania Gas	29	1.00	3.4	1.79	126	Dec.	16.2	56	77
146	S	Peoples Gas Lt. & Coke ..	155	7.00	4.5	10.48	D3	June	14.8	67	37
27	O	Southern Union Gas	24	1.00	4.2	1.33	39	Dec.	18.0	75	38
215	S	United Gas Corp.	32	1.50	4.7	1.94	D9	June	16.5	77	42

Averages 4.2% 15.9 70%

Retail Distributors

23	A	Alabama Gas	36	\$1.28	3.6%	\$1.93	12%	July	18.7	66%	44%
42	A	Ark.-Louisiana Gas	16	.50	3.1	.61	15	June	—	82	49
36	O	Atlanta Gas Light	30	1.20	4.0	2.20	29	June	13.6	55	39
5	O	Berkshire Gas	13	.80	6.2	.97	111	June	13.4	82	37
4	O	Bridgeport Gas Light	27	1.40	5.2	2.05	21	June	13.2	68	45
46	S	Brooklyn Union Gas	33	1.80	5.5	2.60	5	June	12.7	69	46
29	O	Central Elec. & Gas	17	.80	4.7	1.40	26	June	12.1	57	16
10	O	Central Indiana Gas	17	.80(b)	4.7	.99	60	June	17.2	81	62
4	O	Chattanooga Gas	7	.30	4.3	.28	—	May	25.0	107	43
51	O	Gas Service	27	1.36	5.0	1.83	5	June	14.8	74	46
6	O	Hartford Gas	39	2.00	5.1	2.97	NC	Feb.	13.1	67	52
2	O	Haverhill Gas	51	2.60	5.1	3.19	2	July	16.0	82	71
14	O	Houston Nat. Gas	25	1.00	4.0	2.15	6	July '54	11.6	47	22
14	O	Indiana Gas & Water	19	.92	4.8	1.32	16	July	14.4	70	46
6	A	Kings Co. Lighting	15	.90	6.0	1.16	D5	June	12.9	78	27
38	S	Laclede Gas	154	.72	4.6	.96	17	June	16.1	75	38
3	O	Michigan Gas Utils.	21	.90	4.3	1.24	23	Dec.	16.9	73	41
3	O	Midsouth Gas	11	—	—	.50	—	Dec.	22.0	—	30
31	O	Minneapolis Gas	26	1.25	4.8	1.63	16	June	16.0	77	44
13	O	Mississippi Valley Gas ..	20	1.00(d)	5.0	1.65	NC	May	12.1	61	29
8	O	Mobile Gas Service	22	.90	4.1	1.79	32	June	12.3	50	31
7	O	New Haven Gas	30	1.60	5.3	2.58	38	Dec.	11.6	62	64
9	O	New Jersey Nat. Gas	25	1.00E	4.0	1.76	35	June	14.2	57	26
62	O	North. Illinois Gas	21	.80	3.8	1.14	NC	July	18.4	70	49
183	S	Pacific Lighting	41	2.00	4.9	2.61	52	June	15.7	77	44
12	O	Pioneer Natural Gas	31	1.32	4.3	1.88	28	June	16.5	70	47
12	O	Portland Gas & Coke	30	.90	3.0	2.14	33	June	14.0	42	41
2	O	Portland Gas Light	12	.75	6.3	1.08	19	Dec.	11.1	69	24
8	A	Providence Gas	10	.48	4.8	.52	27	Dec.	19.2	92	62
3	A	Rio Grande Valley Gas ..	3	.12	4.0	.26	15	June	11.5	46	62
6	O	Seattle Gas	15	.40	2.7	.65	D11	June	23.1	62	60
8	O	South Jersey Gas	25	1.20	4.8	1.62	17	Feb.	15.4	74	52
23	S	United Gas Improvement ..	38	2.00	5.3	2.06	NC	July	18.4	97	63
33	S	Washington Gas Light ..	41	2.00	4.9	2.78	20	June	14.7	72	42
6	O	Western Kentucky Gas ..	14	.60	4.3	1.06	14	Dec.	13.2	57	38

Averages 4.6% 15.3 70%



RECENT FINANCIAL DATA ON TELEPHONE, TRANSIT, AND WATER UTILITIES

1954 Rev. (Mill.)		9/21/55 Price About	Divi- dend Rate	Approx. Yield	— Share Earnings* —			Price- Earnings Ratio	Div. Pay- out	Approx. Com. Stock Equity
					Cur- rent Period	% In- crease	12 Mos. Ended			
Communications Companies										
	Bell System									
\$4,784	S	Amer. T. & T. (Cons.) ..	181	\$9.00	5.0%	\$12.39**	6%	May	14.6	73% 65%

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220	A	Bell Tel. of Canada	52	2.00	3.8	2.43	5	Dec.	21.4	82	63
37	O	Cin. & Sub. Bell Tel.	89	4.50	5.1	5.16	26	Dec.	17.2	87	100
163	A	Mountain Sts. T. & T.	146	6.60	4.5	8.20	17	May	17.8	80	74
259	A	New England T. & T.	138	8.00	5.8	7.78	D6	June	17.7	103	64
632	S	Pacific Tel. & Tel.	137	7.00	5.1	9.78	24	May	14.0	72	58
81	O	So. New England Tel.	42	2.00	4.8	2.18	8	Dec.	19.3	92	60

Averages 4.9% 17.4 84%

Independents

11	O	Calif. Water & Tel.	20	\$1.00	5.0%	\$1.34	14%	July	14.9	75%	36%
12	O	Central Telephone	20	.90	4.5	1.83	31	June	10.9	49	23
35	O	Continental Tel.	31	1.00	3.2	1.70	38	June	18.2	59	23
3	O	Florida Telephone	18	.80	4.4	1.07	40	Dec.	16.8	75	41
143	S	General Telephone	41	1.28	3.1	2.20	38	July	18.6	58	34
5	O	Inter-Mountain Tel.	15	.80	5.3	.92	26	Dec.	16.1	86	54
17	S	Peninsular Tel.	40	1.80	4.5	2.21	16	June	18.1	81	46
16	O	Rochester Tel.	21	1.00	4.8	1.50	28	June	14.0	67	31
3	O	Southeastern Tel.	17	.90	5.3	1.48	38	June	11.5	61	52
7	O	Southwestern Sts. Tel. ..	21	1.00	4.8	1.31	18	June	16.0	76	34
24	O	United Utilities	23	1.20	5.2	1.60**	—	June	14.4	75	33
10	O	West Coast Telephone ...	20	1.00	5.0	1.27	D10	June	15.7	79	42
222	S	Western Union Tel.	23	1.00	4.3	1.89**	12	Dec.	12.2	53	81

Averages 4.5% 15.2 69%

Transit Companies

27	A	Capital Transit	10	\$.80	8.0%	\$.75	D23%	Mar.	13.3	107%	(e)
13	O	Cincinnati Transit	5	.30	6.0	.13	D86	Dec.	—	231	41%
9	O	Dallas Ry. & Terminal ..	14	.70	5.0	2.21	21	Dec.	6.3	32	71
227	S	Greyhound Corp.	15	1.00	6.7	1.40	19	Mar.	10.7	71	44
25	O	Los Angeles Transit	16	1.00	6.3	.99	D21	Dec.	16.2	99	87
29	S	Nat'l. City Lines	23	1.40	6.1	2.76	17	Dec.	8.3	51	75
26	S	N. Y. C. Omnibus Corp. ..	25	2.00	8.0	2.71E	NA	June	9.2	74	85
73	O	Phila. Transit	15	.30	2.0	Deficit	—	Dec.	—	—	24
7	O	Rochester Transit	43	.40	8.9	.44	D23	Dec.	10.2	91	38
25	O	St. Louis P. S.	14	1.40	10.0	.79	D35	Dec.	17.7	177	90
17	S	Twin City R. T.	16	1.60	10.0	Deficit	—	Dec.	—	—	43
23	O	United Transit	5	—	—	.53	D28	Dec.	9.4	—	44

Averages 7.0% 11.3 104%

Water Companies

<i>Holding Companies</i>											
34	S	American Water Wks.	10	\$.50	5.0%	\$.91	3%	June	11.0	55%	16%
4	O	N. Y. Water Service	65	.80	1.2	1.96	40	June	—	41	32
<i>Operating Companies</i>											
4	O	Bridgeport Hydraulic ..	31	1.60	5.2	1.49	D5	Dec.	20.8	107	53
11	O	Calif. Water Service	44	2.20	5.0	2.50	D2	July	17.6	88	29
2	O	Elizabethtown Water	137	5.00	3.6	6.34	D5	Dec.	21.6	79	—
8	S	Hackensack Water	43	2.00	4.7	3.26	D8	Dec.	13.2	61	40
5	O	Jamaica Water Supply ...	40	1.80	4.5	2.94	9	June	13.6	61	22
4	O	New Haven Water	59	3.00	5.1	4.42	76	Dec.	13.3	68	58
1	O	Ohio Water Service	27	1.50	5.6	1.78	D8	June	15.2	84	44
6	O	Phila. & Sub. Water	35	1.00(c)	2.9	2.45	—	Dec.	14.3	41	22
2	O	Plainfield Union Wt.	59	3.00	5.1	4.00	8	Dec.	14.8	75	—
3	O	San Jose Water	49	2.00	4.1	3.30	56	July	14.8	61	—
9	O	Scranton-Springbrook ...	19	.90	4.7	1.35	2	June	14.1	67	35
4	O	Southern Calif. Water ...	15	.65	4.3	1.02	4	June	14.7	64	—
3	O	West Va. Water Serv. ..	32	1.40	4.4	1.31**	D12	June	—	107	17

Averages 4.6% 16.6 74%

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. D—Decrease. *Earnings are calculated on present number of shares outstanding, except as otherwise indicated. **On average shares. #—A 2 per cent stock dividend was also paid December 31, 1954, and in previous year. (a)—Paid 4 per cent stock dividend. (b)—Paid 10 per cent stock dividend. (c)—Paid 5 per cent stock dividend. (d)—Paid 25 per cent stock dividend. (e)—Company to be liquidated. NC—Not comparable. E—Estimated. NA—Not available.



What Others Think

The Judgment Factor in Cost-of-capital Opinion Testimony

THE greater independence from judicial review provided by the Hope Natural Gas decision (1944) 320 US 591, 51 PUR NS 193, 88 L ed 333, has resulted in new responsibility and authority for utility regulatory commissions. The concurrent abandonment of the fair value principle as the "law of the land" has relieved some of the controversy over rate base and moved the rate of return determination to the forefront. In light of these developments, Dr. Fred P. Morrissey, professor of finance, public utilities, and business economics at the University of California, writing in the August, 1955, issue of *Land Economics*, has occasion to evaluate the cost-of-capital approach now widely advocated as a scientific approach to the determination of the reasonable rate of return. His interesting article, "A Reconsideration of Cost of Capital and a Reasonable Rate of Return," is intended to put the "science" in its proper perspective by spotlighting moments in past rate cases where the "scientists" have gone beyond their statistics. Rule-of-thumb guesses based on judgment and opinion, have often been a large factor in determining the final cost-of-capital approach to rate of return allowance. Dr. Morrissey would have us recognize the importance of this, not only for the individual rate

case, but in terms of the ultimate validity of the cost-of-capital approach to the rate of return.

The Supreme Court stated the legal requirements for a fair or reasonable rate of return in the *Bluefield* decision (262 US 679, PUR1923D 11, 67 L ed 1176), requirements which are reducible to three criteria: (a) the capital attraction standard, (b) the credit maintenance standard, and (c) the comparable risk standard. Dr. Morrissey states that many utility companies have emphasized the latter two, with particular emphasis on the comparison with other business of corresponding risks. The opponents of rate increases tend to favor the capital attraction standard, claiming that a rate of return adequate to attract capital to a utility must also maintain the company's credit (or else it could not obtain the capital) and must be equivalent to whatever rate of return an investor could reasonably expect from alternative investments of comparable risk.

The author continues:

As a result, many rate of return witnesses have adopted this capital attraction criteria as all-inclusive and have sought a rate of return which will be "capital attracting." A common approach is the use of the so-called "cost

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of capital"—a much used and much abused term subject to variable connotation and calculation. One source of confusion is due to the absence of distinction between the definition of "cost of capital" and the approach, method, or formula utilized to arrive at this "cost of capital" expressed in percentage terms. In part, the controversy which has been carried on in rate hearings and in the academic and trade journals is directed at whether the term "cost of capital" is synonymous with a fair rate of return, but also is directed at whether a per cent figure derived by the so-called cost-of-capital formula, is an appropriate and fair rate of return. The latter appears to be the real issue.

WITH this introduction, Dr. Morrissey proceeds to an appraisal of the principles of the cost-of-capital technique as applied by witnesses in rate of return cases. His concern is not with any issue posed by inflation, but rather with the underlying assumptions, techniques, and alleged advantages of the "cost-of-capital" method. Since every witness uses his own formula or method to arrive at representative earnings, dividends, capitalization rates, and capital structure, the writer found it necessary to review the detailed testimony of experienced rate of return witnesses, who have utilized the "cost-of-capital" approach. Specifically, he directed investigation at (a) the definition of the term "cost of capital" and whether or not the term so defined was equated to a fair rate of return, and (b) the technique or procedure used for measuring the cost of capital, especially the most significant and controversial item, the cost of equity capital. He concludes with an appraisal of these findings and with some instructive remarks on the appropriateness and relevance of the "cost-of-capital" tech-

niques to a fair or reasonable rate of return.

In the definitions of "cost of capital" utilized by rate of return witnesses, Dr. Morrissey finds a fair degree of uniformity. One difference, however, derives from qualifications that well-known experts have often imposed on the impact of raising new capital on the present stockholders.

THE definition generally used for the term is: "... the competitive market price that must be paid to attract new money to this company in view of the alternative investment opportunities with allowances for differences in risk." But qualifications are often added, at least one of which is of great significance. As one expert stated it, "In a broad sense (the cost-of-capital standard) . . . refers to whatever rate of return is deemed adequate to maintain sound corporate credit and to permit a public utility company under efficient management to raise new capital *without impairing the integrity of the existing investments.*"

The qualification added here is vital to the welfare of present security holders, as Dr. Morrissey points out. Practically any corporation with an earnings position can raise capital. Common stock can be sold, often even to existing stockholders, if the offering price is favorably low. It is elemental, the writer maintains, that consideration be given to the effect of raising new capital on the position of present security holders—a situation already recognized by law in "pre-emptive right" requirements in most states. Consequently, any definition ignoring this situation is deficient and if adhered to may work an injustice on existing security holders. While acceptance of this qualification may merely shift the burden to a determination of what constitutes impairment of the in-

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tegrity of the existing investors, in any case, the author declares, it indicates that the first definition of "cost of capital" has a great weakness, if presented as an equivalent of fair rate of return.

DR. MORRISSEY quotes liberally from testimony of witnesses and from an FCC report in seeking to determine how far "cost of capital" has been regarded as equivalent to a "fair rate of return." He finds contradictions and no little confusion. He notes that the FCC report initially equates the two, but later states that the "cost of capital" is properly usable in the best situations only as an indication of the minimum below which the rate of return may not reasonably be fixed. This latter view found substantiation from one expert in a California rate case: "... It is my opinion that the fair rate of return will be found between (1) a lower limit which might be considered as a confiscatory rate of return, a return less than current capital costs, and (2) a return so high as to be uneconomical and burdensome to the ratepayer." Another witness in the same case suggested that the cost of capital and the fair rate of return might be equal, but that there might be a differential in some cases, a "matter of general judgment" rather than statistical analysis. In another and later case, the same witness claimed that a fair rate of return is synonymous with a "full cost of capital" whereas a "bare-bones" cost of capital lies at the bottom of the range of reasonableness. This witness defines the "bare-bones" cost of capital in terms of whether or not liberal estimates of cost of additional debt and preferred financing, of pressure, of capital structure, of earnings-price ratio are used.

Another witness Dr. Morrissey quotes threw additional doubt on the preciseness of cost-of-capital techniques in relation to

the fair rate of return when he said that a reasonable result could be reached "with the necessary corrections for business conditions and other unmeasured factors, as a measure of a fair rate of return."

STILL another suggests that a fair rate of return and "cost of capital" are synonymous if, in calculating the latter, something is allowed for retained earnings and for costs of floating new issues of securities; *i.e.*, a requirement which might put this approach in line with "full cost of capital," the "bare bones cost" being defined as the cash cost (the actual cash payments on interests and dividends for the year), which falls short of a fair rate of return. Two other witnesses include an allowance for retained earnings, then equate cost of capital and a reasonable rate of return.

In general, Dr. Morrissey describes two main streams of thought, one utilizing a "cost-of-capital" technique but denying equivalence of the result to a fair rate of return, the other considering the "cost of capital" synonymous with reasonable rate of return providing the "bare-bones cost of capital" is not employed. On the subject of a "bare-bones" cost of capital, Dr. Morrissey finds at least three separate and distinct versions. One is stated in terms of cash cost, another in terms of the degree of liberality of calculations used, a third in what several witnesses would call the "full" cost of capital and which they would equate to a fair and reasonable rate of return. "However," Dr. Morrissey goes on, "there does appear to be a degree of agreement; whenever a witness uses the term 'bare-bones' cost of capital, to that witness it appears to mean a rate of return that is near the lower end of the range of reasonableness. At best one can say that there is a distinct lack of unanimity of opinion among witnesses who have

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avored the 'cost-of-capital' approach, as to the significance of their results in rate of return proceedings."

Dr. Morrissey adds:

The methods employed in arriving at the "cost of capital" are not uniform from one witness to another, yet there is an underlying thread common to most of them . . . First, a utility's capitalization or long-term capital is established as 100 per cent and is segregated into (a) the long-term debt component, (b) the preferred stock component, and (c) common stock equity component, including earned surplus. The next step is to compute the cost of debt capital, the cost of the preferred stock (in each case the interest and dividend costs plus flotation and amortization of premium or discount are included), and finally the cost of the common equity capital. These component costs are weighted on the basis of their proportion in the capital structure and an average determined. The costs of the senior securities are not subject to much controversy since the actual imbedded costs of debts and preferred are used, plus the current cost of new senior financing where this is clearly contemplated in the near future. But the different methods used in deriving the cost of equity funds raise unresolved issues . . .

IN addition, many of the "cost-of-capital" proponents stress the necessity of adjusting the capital structure to conform to some standard, on the assumption that debt capital is cheap money and a high debt—low equity ratio will thereby reduce the computed cost, according to Dr. Morrissey. He states that this adjustment to an ideal structure introduces a judgment factor which is not only difficult to substantiate but also difficult to refute. But it is clear that if a commission adopts a

rate of return of 6 per cent assuming a 35 per cent equity ratio, for example, and the company has favored and utilized an equity ratio of 50 per cent, then unless the company adopts the capital structure assumed by the commission, the return on the common equity will be deficient—a result which alone may depress the market price of the stock and force compliance by the company.

But the most serious debate, the author feels, centers around the determination of the cost of equity capital to the public utility corporation. Since the common equity holder's claim is of a residual nature, he enjoys no legal commitment to receive either earnings or dividends. What he does receive is a proportionate claim to the future earnings of the company, and what he purchases is basically expected future income, income which may be received either in terms of dividends or capital appreciation. On this point, Dr. Morrissey states, it should be obvious that historical amounts paid out in dividends to common stockholders, or earnings realized, cannot be accepted as determinative of the cost of equity capital for the purpose of reaching return requirements.

THE very residual nature of common stock denies that historical dividends or earnings of past periods are guaranteed for the future, and any procedure which mechanically assumes that investors are buying past earnings or dividends (or that these earnings or dividends are the best approximation to future requirements) is contrary to reality. The author explains:

The "cost - of - capital" proponents commonly determine this cost of equity capital by means of earnings-price ratios or dividend-price ratios, or both, and assume that the rates at which earnings or dividends are capitalized in

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the recent past represent the cost of common equity. The first issue then is whether investors are buying earnings or dividends and accordingly whether one should use earnings-price ratios or dividend-price ratios in determining the cost of equity capital. This matter presents a real dilemma to the cost-of-capital witness because in most cases a different "cost" figure will result depending upon which is used. Further, the use of the dividend-price approach introduces the additional problem of a "pay-out" ratio—the percentage of net earnings paid out in common stock dividends.

In brief, the use of earnings-price ratios assumes that investors are buying the future earnings of the company, and the price paid for these earnings takes into account all other relevant factors such as growth, differences in competition, pay-out, efficiency of management, etc.

According to the FCC report, quoted by Dr. Morrissey, it seems generally to be conceded that the long-run average earnings-price ratio, more accurately than any other single factor, reflects the investor's composite evaluation of all fundamental influences affecting the corporation. One of the witnesses, earlier quoted, agreed that earnings-price ratio for one company reflected the market evaluation of that company's depreciation policy, pricing, dividend policy, etc., and required no adjustment. If, however, the analyst is deriving a cost of equity for Company A with a pay-out of 80 per cent, from the earnings-price ratio of Company B with a pay-out of 95 per cent, then an adjustment may be in order.

ANOTHER witness, in putting many restrictions on the proper use of earn-

ings-price ratio, went so far as to suggest that due weight should be given to future or anticipated earnings, and that its use should be confined to situations where earnings of a given year or where average earnings of an immediately past period closely approximate future earnings. This witness, says Dr. Morrissey, seems to be unaware that the *raison d'être* for the rate proceeding is to *determine* the allowable future earnings.

Still another witness, says the author, developed a new approach to the use of earnings-price ratios, although he claimed he was only changing the facts. He testified at a rate hearing that "In an effort to normalize earnings for that year I tried to put myself in the position of an investor in that year to determine whether or not in his opinion he would conclude that the earnings of the company for that year were going to be the average normal future earnings subsequent to 1947." Thus this witness introduced a "normalization" process—a subjective adjustment of the actual ratio to what the witness thought the investor thought it was! The point demonstrated, says Dr. Morrissey, is the variability of approach and lack of precision in the earnings-price approach.

ONE expert, in a Bell telephone rate case, used three methods to determine the cost of equity: (1) the alternative investment opportunities in other types of equity securities; (2) the market experience of AT&T stock itself, and (3) the actual cost of money to the Bell system, based on postwar issue prices. He came up with a "cost-of-capital" figure by all three methods within the range of 8 $\frac{1}{4}$ to 9 $\frac{1}{4}$ per cent.

In a West coast telephone rate case, another expert used five different approaches and reached four different answers, ranging from 8.33 per cent and

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8.76 per cent. Yet, says Dr. Morrissey, he estimated the cost of common stock capital to be within the range of 8.25 per cent to 8.50 per cent. This, he explains, amounted to the introduction of a new element; namely, that *the allowed return on equity should vary depending on the ownership of the stock*. The witness used the lower figure for that proportion of stock, about 90 per cent, owned by the parent AT&T company and applied the higher cost to shares publicly held.

THE author considers that his survey of the various approaches of "cost-of-capital" witnesses to a determination of the cost of equity capital is but a preliminary indication of the complex nature and number of problems faced.

He writes in amplification:

... [A witness] must decide whether he will use the earnings-price ratio, or the dividends-price ratio (or an alternate version, the earnings-net-proceeds ratio); or if both are utilized what weight will be given to each since it is highly unlikely that precisely the same result will be reached. Further [he] must decide whether the statistics of the applicant utility or those for "comparable" companies will be employed—if the latter, the questions are myriad. The selection of an appropriate historical time period to ensure "representative" market data is a complex statistical problem, since all witnesses deplore the use of spot data as volatile and untrustworthy. Appropriate capital structures, pay-out ratios, and allowances for cost of flotation and underpricing must be arrived at; and, in at least some proceedings, differential rates of return are allowed for new capital to be raised in the near future. And ... some consideration must be given to the ownership group—a prob-

lem perhaps more complex than all the others combined. The important point, however, is that many of these issues are not subject to statistical determination, and at every turn involve the use of judgment. As a consequence the alleged major advantage of the cost-of-capital device is thrown into doubt. This advantage was claimed to be the interjection of *objectivity* in the determination of a reasonable rate of return through reliance on the impersonal market forces, resulting in a precision unparalleled by other methods. However, the reliance upon judgment decisions is so necessary in these studies that objectivity, in the sense of a resulting rate of return which can be proved mathematically correct by reference to market forces or behavior, is almost entirely absent.

DR. MORRISSEY does not deny that it is still possible to argue that, even if a "cost-of-capital" approach to a fair rate of return cannot be derived objectively from market data, the approach is nevertheless sound and provides basic essential background data necessary to a judgment decision on the fair rate of return. He insists, however, that further examination of the assumptions underlying the method suggests caution if not doubt on this score.

In this respect, the author states, the use of both earnings-price ratios and dividend-price ratios of either the applicant utility or of comparable utilities has serious limitations when held out as proof of the earnings demanded by investors. What investors are buying are not realized earnings or dividends but expected future income. The fact that several utility stocks have been selling at 20 times earnings for some time does not indicate that investors are willing to accept a 5 per

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cent return on their investment, but that they anticipate an improvement in earnings, or dividends, or a capital appreciation through the purchase.

There is also controversy over whether investors are buying earnings or dividends. It is now agreed, Dr. Morrissey states, that the use of earnings-price ratios alone does not recognize the importance of dividends, or the pay-out ratio, in the determination of market price. Numerous studies purport to show that investors actually favor stocks with high dividend pay-out ratios over stocks with low pay-out ratios. In the author's opinion, the assumption that follows is that the higher the pay-out ratio the lower the cost of equity capital—thus if an analyst wishes to lower the cost of capital he merely has to increase the proportion of earnings paid out as dividends.

But he adds:

... Such a conclusion overlooks the fact that dividend policy must be determined on the basis of the corporation's capital structure, stability of operations, adequacy of earned surplus, cash position, and other factors. Seldom does any witness on cost of capital attempt any analysis of these fundamental factors affecting dividend policy. To suggest that a simple increase in pay-out reduces the cost of equity capital at best looks at the very short-run situation and, before any validity can be given to the conclusion, requires detailed substantiation.

ON the other hand, if investors in fact do prefer a company with a high pay-out ratio, despite current high personal income tax rates, such action may overemphasize short-run income considerations, the writer feels. For example, the advantage to be derived from the preferential tax treatment of capital gains

should encourage many utility investors to look for capital appreciation through retention of earnings rather than demand larger cash dividends subject to the higher personal income tax. Accordingly, the author continues, any reduction in the portion of earnings consumed by taxes should reduce the cost of equity capital to the company. Moreover, where retained earnings are included in the rate base, some capital appreciation should be anticipated. In so far as this is the case, the author adds, the insistence on a high pay-out ratio to reduce the cost of equity capital may be unjustified.

A further deficiency of "cost-of-capital" procedures is revealed, the author considers, when the relation between book value and market value of the common stock is analyzed. The cost-of-capital approach seeks to determine a level of earnings which will support a market price sufficiently in excess of the book value of the common stock so that new stock can be sold at a net price equal to or above the book value. In this way, the sale of new stock netting book value, will not dilute present stockholders' interests. According to Dr. Morrissey, witnesses commonly assume 10 per cent as a liberal approximate discount for the costs of flotation and underpricing, and the appropriate market price then would be 11.11 per cent above book value. But a comparison of such an allowance with the 40 per cent excess of market value over book value which is currently characteristic of the electric utility industry indicates, in the author's view, that the earnings on any utility stock so calculated will be substantially below the industry level, and the market price similarly will be depressed.

THE author does not mean to indicate that what constitutes an appropriate excess of market over book value is a sim-

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ple problem by any standard. What he emphasizes is that any "cost-of-capital" device does not objectively or otherwise provide for this requirement, since it only provides for an excess of market value over book value which will allow for the costs of financing and underpricing of the new stock. In consequence, the author declares, an extremely important issue in arriving at a rate of return is not adequately met by the "cost-of-capital" techniques and, if provision is to be made for it, then another judgment factor enters, further destroying the "objectivity" of the "cost-of-capital" method.

Dr. Morrissey merely mentions what he regards to be another shortcoming of equating a "reasonable rate of return" with the cost of capital: No provision is made for a cushion against bulk increases in operating costs, an item very significant to utilities purchasing natural gas, or large quantities of labor. This additional shortcoming, he remarks, may be greatly magnified by the "regulatory lag" experienced in many states.

In summary, the writer states:

Sole reliance on the capital attraction standard as developed with the use of earnings-price and dividend-price ratios is inadequate because it assumes that the terms under which a new investor might devote his money to the business represents or limits the return the utility and the present investors are entitled to receive on capital already committed. The return necessary for new capital may be greater or less than a fair return to existing investors.

The historical amounts of earnings realized or dividends paid to common stockholders cannot be accepted as controlling the cost of equity capital. Because of the residual nature of common stock, any method has serious shortcomings which mechanically assumes

either that investors are buying past earnings or dividends, or that these past earnings or dividends are the best approximation to future requirements. Further, the assumption that investors are buying dividends only is by no means adequate because there are numerous other possible factors which influence investor appraisals and which are not subject to analysis in a study of dividend-price ratios. Intensive investigation of the motives of investors in utility stocks is yet to be done and unfortunately neither regulatory commissions nor the utility companies are inclined to pursue such an investigation . . .

IN his conclusion, Dr. Morrissey writes that there appears to be no basis for the claim that the "cost-of-capital" techniques are based upon impersonal market forces which afford an objective and statistically accurate result. If the witness hews closely to the use of statistically derived earnings-price and dividend-price ratios, the method is mechanistic, but even then judgment decisions are necessary on relevant time periods, pay-out ratio, capital structure, etc. On the other hand, if the derived statistical data are altered such as by a "normalization" process, or if the derived cost of capital is augmented in some way, the writer believes that the result is one of personal opinion. He feels that the commissions have no alternative but to weight such testimony on the basis of the witness' intellectual honesty and demonstrated knowledge of financial and economic matters, as well as other intangible factors. Such being the case, Dr. Morrissey finds nothing infallible or sacred about the cost-of-capital techniques. As an approach to a reasonable and fair rate of return, they have numerous shortcomings, both in theory and in practice.

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Notes on Recent Publications

THE 1955 edition of *Gas Facts*, the annual statistical yearbook of the American Gas Association, containing 1954 statistics on the gas utility and pipeline industry, is now available. This 272-page publication contains all pertinent information on energy reserves, production, transmission and distribution, underground storage, sales and utilization, finance, labor, and prices, in addition to a brief section containing Canadian statistics.

The current edition provides 1954 data for virtually all of the tables included in previous issues. New material added this year includes a separate income statement and balance sheet for all pipeline companies, from 1941 to 1954; additional statistics on exploratory drilling for natural gas and/or oil; detailed tables showing appliance shipments by size, type of unit, and month of the year; and a table showing, for selected cities, the cost (in cents per million Btu) of various residential heating fuels since 1941.

As in the past the publication is available at a cost of \$2 per copy for the first five copies and \$1.50 per copy for all additional copies. They may be ordered from American Gas Association, 420 Lexington avenue, New York 17, New York.

PIPELINE DATA NOW AVAILABLE. The nation's natural gas industry, which has spent \$4 billion on expansion since 1945, will boost the total to nearly \$5 billion when it completes projects already authorized or pending as of the first of this year, according to the 1955 edition of "Natural Gas Construction Data."

This study, compiled from information made available by the Federal Power Commission and published by the Gas Appliance Manufacturers Association, provides detailed information on the individual projects, companies, and communities involved in the continuing expansion. It shows that projects approved by the Federal Power Commission during 1954 will add approximately 1.75 billion cubic feet of natural gas to the daily delivery capacity of existing facilities at a cost of \$451,000,000. More than a million tons of line pipe will be required for the 6,392 miles of

transmission and gathering lines which will bring either new or additional natural gas service to 76 cities of 50,000 or more population, as well as hundreds of smaller communities.

In addition to this authorized construction, the study shows, projects pending FPC approval on January 1, 1955, included 5,251 miles of pipeline requiring 1,223,000 tons of line pipe and a total expenditure of \$469,000,000.

The brochure lists the 76 cities which will receive new or additional natural gas service, provides the names and addresses of the pipeline and operating utility companies participating in pipeline construction approved during 1954 or pending on January 1, 1955. It details the mileage, cost, line sizes, estimated steel pipe tonnage, compressor horsepower, FPC docket numbers, and purpose of these pipeline projects. The study also summarizes miles of natural gas pipelines, estimated net tonnage, compressor horsepower, and cost of projects authorized from July 1, 1945, through January 1, 1955.

The brochure is available at \$2 per copy from the marketing and statistical department of the Gas Appliance Manufacturers Association, 60 East 42nd street, New York 17, New York.

WHEREVER he lives, the consumer of natural gas has a stake in a continuing and adequate supply. But the consuming public, producers of natural gas believe, has been deluded into thinking that only regulation by the Federal Power Commission of all phases of the industry can ensure the delivery of the fuel in adequate quantities and at a reasonable price. At the request of producers, Research Services, Inc., has prepared a series of informational pamphlets which show the natural gas picture, from the consumer viewpoint, in individual state and city areas. Each of more than 25 pamphlets attempts to show that federal regulation of wellhead sales is not needed, and will hurt, rather than help, the consumer. Pamphlets may be obtained from Research Services, Inc. P. O. Box 279, Ridgewood, New Jersey.



Applies to FPC for Gas Rate Increase

CITIES SERVICE GAS COMPANY, of Oklahoma City, Oklahoma, recently applied to the Federal Power Commission for a proposed \$3,900,000, or 9½ per cent, annual increase in its wholesale natural gas rates, based on sales for the 12-month period ended June 30, 1955.

Cities Service proposes to make the higher rates effective October 23rd. The increase would affect approximately fifty wholesale customers in Kansas, Missouri, Nebraska, Oklahoma, and Texas.

The \$3,900,000 increase would be in addition to another increase, previously suspended by the FPC, which Cities Service is now collecting subject to refund. The earlier proceeding involves an increase of about \$12,600,000, and the FPC by order issued April 22, 1954, suspended all but \$3,000,000 of that amount. The FPC ruled that the \$3,000,000 was not subject to suspension under the Natural Gas Act since it was applicable to sales for resale for industrial use only.

NARUC to Feature Gas Panel

ACCORDING to W. F. Whitney, president of the National Association of Railroad and Utilities Commissioners, the controversial question of whether to regulate

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or not to regulate producers of natural gas will be given featured billing by the regulators themselves at the NARUC's annual convention, to be held in Asheville, North Carolina, October 24th to 27th.

On October 26th an all-forenoon, 6-member panel discussion on the regulation of natural gas has been arranged. Panel members will present the Federal Power Commission viewpoint; the viewpoint of producers and of the producing states; and the viewpoint of the consuming states. Each panel member is an expert in his field of discussion.

The panel will consist of the following: Honorable Frederick G. Hamley, chief justice of the Washington supreme court, formerly chairman of the Washington Public Service Commission, as moderator; panel members—Jerome K. Kuykendall, FPC chairman; Ernest O. Thompson, chairman, Texas Railroad Commission; Ray C. Jones, chairman, Oklahoma Corporation Commission; John C. Hammer, chairman, Tennessee Public Service Commission; and Henry J. O'Leary, chief, rates and research, Wisconsin Public Service Commission.

The panel will discuss the impact of regulation on (1) producers and suppliers of natural gas; (2) the producing states; (3) conservation; (4) exploration for new gas supplies; (5) price of gas to con-

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sumers; (6) utilization of gas supplies.

Audience participation in a question-answer period will be held during the panel session.

FPC Issues Certificate

THE Federal Power Commission last month authorized the Tennessee Gas Transmission Company, of Houston, Texas, to construct new pipeline facilities, estimated to cost \$56,001,000, to increase the capacity of its transmission system by 107,610,000 cubic feet of natural gas per day.

At the same time the FPC approved applications by five independent producers

proposing to sell natural gas to Tennessee, and authorized one new and two existing customer companies of Tennessee to build new pipeline facilities.

Tennessee's project will increase its system average-day design capacity from 1,728,390,000 cubic feet to 1,836,000,000 cubic feet, and the peak-day design capacity from 2,115,969,000 cubic feet to 2,223,579,000 cubic feet. The new facilities will be used to supply gas to eight new wholesale customers, to increase sales to 22 existing customers, and to serve two towns and one company which had intervened in the proceedings for allocations of gas.

Colorado

Halt Called on Natural Gas Waste

FLARING of natural gas in the rich Rangely oil field of northwest Colorado must be limited to 30,000 cubic feet per well per day, the Colorado Oil and Gas Conservation Commission directed last month, and oil production must be held to 275 barrels daily from each well. The limits will be effective October 14th.

The commission estimated that 30 billion cubic feet of gas have been wasted by operators in the field and said uncontrolled production of oil there "is leading to a serious drainage problem which, in turn,

is violating the correlative rights of certain of the operators and causing waste."

The commission findings also said that "about one-half of the oil and gas recoverable under primary methods has been produced" in the field. Under present operating conditions, the commission reported, 85,000,000 cubic feet of gas might be flared in the field every day and it termed this "unreasonable."

The commission said people of the state "are entitled to have their natural resources protected against waste" and that it must do so "within the limitations of its statutory power."

New Mexico

Voters Reject Regulatory Plan

At a special election last month, a proposed state constitutional amendment for revision of the state's public utility regulatory machinery was rejected by the voters. The defeated proposal would have had the effect of empowering the state legislature to provide for regulation of utilities and, if it so decided, to create a

new single commission to administer such regulation.

It would have been left to future legislatures to determine whether such a commission would have been elective or appointive. However, the 1955 state legislature, in submitting the amendment to the voters, also enacted companion bills calling for an elective public utility regulatory agency if the voters approved the amend-

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ment. These bills are now meaningless.

New Mexico's present statutes and Constitution place authority for utility regulation within two administrative agencies. The elective state corporation commission,

set up by the Constitution, now regulates transportation and communication utilities, while the appointive state public service commission deals with power, gas, and water utilities.

New York

Gas Rate to Rise

NEW YORKERS will pay an additional 10 cents a month in their minimum rates for gas after October 1st, when the Consolidated Edison Company adopts a new gas rate schedule, it was announced recently.

The change will affect all of the company's nearly 1,200,000 residential and nonresidential gas customers in the New York metropolitan area. They now pay a

minimum monthly fee of \$1. At the same time, Consolidated Edison will reduce its high-volume consumption rates by about 11 per cent in the hope of increasing the use of gas for residential heating.

The state public service commission opened hearings on the proposed changes at its New York city office on September 23rd. The hearing was recessed by Harold M. Olmstead, the presiding examiner, until October 7th after about two hours of testimony by Edison witnesses.

Texas

Mexican Gas Contracted

A CONTRACT between Petroleos Mexicanos (Pemex) and Texas Eastern Transmission Corporation was signed on September 27th providing for the sale by Pemex of an initial quantity of 100,000,000 cubic feet of natural gas per day to Texas Eastern over a period of twenty years from the date of the first delivery.

At the outset Pemex will receive from the contract an annual income of approximately \$5,000,000.

It is anticipated that the original daily

contract quantities will be 100,000,000 cubic feet of gas and Pemex is obligated, subject to certain additions, to offer to Texas Eastern up to another 100,000,000 cubic feet of gas per day as additional reserves are discovered by Pemex.

The contract has been approved by the Mexican Secretary of Economy, and it specified that Texas Eastern must make a timely application to the Federal Power Commission for a certificate for the facilities necessary to receive delivery of the gas from Pemex at the Rio Grande river.

Utah

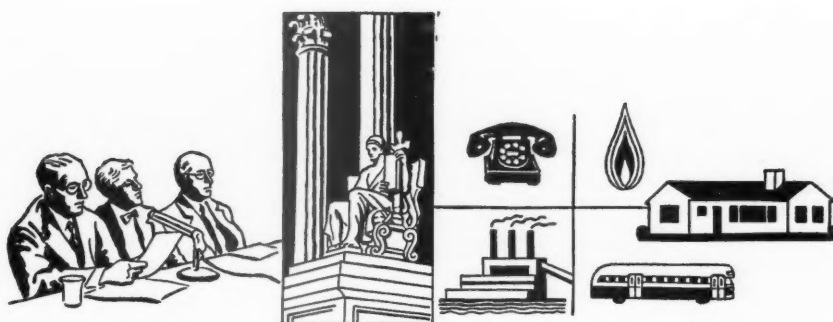
Major Natural Gas Discovery Reported

THE Sinclair Oil & Gas Company recently reported it had made a major natural gas discovery on a leased area 25 miles north of Cisco in eastern Utah's Grand county near the Colorado border.

Sinclair's Salt Lake area manager said

his firm had projected drilling of three additional wells as a result of the find. He said Sinclair has 9,000 acres under lease in the area.

The San Arroyo No. 1, which produced gas from both the Dakota and Entrada formation, appeared capable of a daily output of between 30,000,000 and 40,000,000 cubic feet of gas, it was said.



Progress of Regulation

Regulatory Trends

IN harmony with the principle that a public utility customer should pay the cost of service rendered to him, commissions make an effort to determine such cost, but they have had to face the fact that a rate cannot, as a practical matter, be fixed to cover the exact cost to each customer. Customers in similar circumstances must be grouped. Questions are raised as to interstate and intra-state operations, localities within a state, and classes of customers within a territorial group.

Gas Rates for Integrated System

The vast expansion of natural gas systems across state lines has presented numerous problems difficult of solution. Interstate transmission lines may cross a state and, for convenience, some gas may be taken from them for local use, although lower-cost gas produced in the state may be added to the interstate flow. Allocation of costs and separation of operations under such circumstances are dealt with by the West Virginia commission in the United Fuel Gas Company Case, reviewed at page 684. An Iowa district court has also considered this problem in the Iowa-Illinois Gas & Electric Company Case, reviewed at page 687.

The Kansas commission, in seeking a federal court review of a natural gas rate order of the Federal Power Commission, complained against the use of a system-wide basis of allocation of costs, casting a burden on cities in Kansas which were "atop of or adjacent to the gas fields." It sought a determination of actual costs to cities near the Hugoton gas field of Kansas. A system of zone rates was proposed, but no evidence was introduced in support of such rates. The court (1 PUR3d 310, 338) said that the mere fact that the cities within the Hugoton area were in proximity to the gas fields, and other customers were farther away, did not of itself justify preferential rates for the area.

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The West Virginia commission, however, in the Amere Gas Utilities Company Case (1 PUR3d 230), approved a differential between rates in separate areas, where transportation conditions and the availability of locally produced gas varied.

The Federal Power Commission, in the Hope Natural Gas Case (44 PUR NS 1), said that rates should be uniform in the absence of compelling reasons to the contrary. It followed the same rule in the San Juan Pipe Line Case (84 PUR NS 129). In its recent decision on rates for the Northern Natural Gas Company (9 PUR3d 8), however, it found differing circumstances justifying the establishment of rate zones. That company operates over a wide area in several states.

Even though a state commission may be dealing with a company operating partly beyond its jurisdiction, it may consider company-wide operations to some extent in a rate case. Thus, the New Mexico commission recognized the fact that there was economy in extended operations on an integrated basis when it fixed rates for the Lea County Gas Company (98 PUR NS 123). It did not "blind itself" to operations as a whole.

Intrastate Rate Uniformity

System-wide gas rates for integrated systems have been approved in California (8 PUR3d 8), Kansas (95 PUR NS 378), Michigan (5 PUR3d 449), Montana (94 PUR NS 298), and West Virginia (2 PUR3d 97, 103). But differences between areas have called for different treatment.

The Michigan commission declared that adoption of a system-wide or community basis for rates is discretionary with the commission (92 PUR NS 129). It applied that rule in a recent decision involving the Michigan Consolidated Gas Company (reviewed below). The company owns, in addition to its integrated system, manufactured gas plants in some communities. Those operations were separated, for rate-making purposes, from other operations. Differing circumstances have also resulted in separate rate treatment in certain cases decided in Montana (1 PUR3d 97) and West Virginia (1 PUR3d 230).

Review of Current Cases

Natural Gas Rates Based upon Average Capitalization

THE Michigan Consolidated Gas Company was granted a rate increase by the Michigan commission. The new rates were calculated to yield a return of 6.1 per cent based upon average capitalization.

In a previous order fixing the company's rates, the commission had said that "Consolidated's net revenue should be sufficient to cover its capital costs, main-

tain its credit, and attract additional funds for expansion" (97 PUR NS 350). The commission also held in the present case that the best standard upon which to base the company's return is the amount of funds which the stockholders have invested in the company. It concluded that the most appropriate rate base is that of average capitalization, a figure which ap-

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appropriately reflects the average of the long-term debt, the current sinking-fund requirement, the unamortized premium on debt, with appropriate deduction of unamortized discount and expense, in addition to notes, stock, surplus, and concurrent deduction of capital stock expense. This would include relatively short-term bank loans.

Cost of Money

All witnesses agreed that the cost of outstanding debt capital was 3.39 per cent. The commission witness further testified that the rate to be applied to notes payable was 3 per cent. The witnesses agreed that the cost of equity money should be determined upon the basis of providing net earnings comparable with those of other gas utilities having similar risks with which the company would have to compete for capital in the money market.

The company witness concluded, after making a study of 15 natural gas companies deriving 50 per cent or more of their utility income from natural gas operations, that net earnings for the company should be at the rate of 12.25 per cent on equity in order to compete for capital.

The commission observed that the company witness used a different approach in this case than in earlier cases. He had previously used the "earnings-price ratios" method of computing cost of capital, but in this case it was no longer appropriate.

The commission witness presented a study of six operating natural gas distribution utilities purchasing 90 per cent or more of their gas supply. He determined the cost of equity money to Consolidated by comparing the financial ratios of these companies to the financial ratios of Consolidated. Since the company is a subsidiary of American Natural Gas Company, this witness compared the earnings-price ratios and yields of common stock

of four natural gas holding companies with the American Natural Gas Company.

He applied investment factors, such as the percentage ratio of operating expenses and maintenance to revenues, percentage of depreciation and amortization to revenues, percentage of operating income to revenues, percentage of gross income to revenues, and percentage of net income to revenues. He also compared the ratio of the times that fixed charges were earned, the percentage of gross income to total capital, and the percentage of common earnings of equity capital.

Based upon these comparisons, the commission witness concluded that net earnings of between 11.2 per cent and 11.9 per cent on the company's equity capital would be required to place it in an earnings position comparable to that of companies with which it was to compete for capital. These figures were deemed to be over and above what might be termed "bare-bones" cost of money since an earnings requirement result would recognize something in addition to the bare cost of money.

Just and Reasonable Rates

In discussing the reasonableness of rates, the commission said that in so far as the user is concerned, rates are just and reasonable when they are neither oppressive nor permissive of exorbitant and speculative profits for utility investors. By the same token, it said, rates are just and reasonable in so far as the utility is concerned when they are sufficient to cover all the reasonable costs of doing business, including interest on the bonded indebtedness and a fair dividend on the equity invested in the plant.

Test Period

The commission adopted a test period which, in its opinion, would reflect as near-

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ly as possible the effect of increased costs on revenues. It believed that such a test period provided the most solid basis for rate adjustment. It concluded that the test year should embody actual results for the most recent calendar year as normalized and adjusted for increased cost factors which have become known since the end

of that calendar year. The commission said it "would be flying in the face of reality" were it to ignore matters of increased costs which have occurred since the end of the test year and which have been made known to it in this case. *Re Michigan Consolidated Gas Co. D-3430-55.3, August 17, 1955.*



Refund Rule for Fast Gas Meters Modified

THE Wisconsin commission revised the rule on refunds for fast gas meters specifically to relieve gas companies from making refunds to existing customers when the amount of the refund, due to a fast meter, is \$1 or less. This is permitted in connection with the operation of electric utilities. The commission deemed it desirable that the refund rule for gas companies should be the same as for electric companies.

The new rule provided that whenever a meter is found to be more than 3 per cent fast, a recalculation of bills for service shall be made for the period of inaccuracy. The recalculation shall be made on the basis that the service meter should be 100 per cent accurate. If the period of inaccuracy cannot be determined, it shall be assumed that the full amount of inaccu-

racy existed during the last half of the period since the previous meter test was made.

If the recalculated bills indicate that more than \$1 is due an existing customer, or \$2 is due a person no longer a customer of the utility, the full amount of the calculated difference between the amount paid and the recalculated amount shall be refunded to the customer. The refund to an existing customer may be in cash or as credit on a bill.

Whenever a meter is found to be more than 3 per cent slow, the utility may bill the customer for the amount the test indicates has been undercharged for the period of inaccuracy, which period shall not exceed the last six months the meter was in service. *Re Wisconsin Utilities Asso. 2-U-4371, August 11, 1955.*



Separations Method Preferred to Allocation Method in Allowing Intrastate Gas Rate Increase

THE United Fuel Gas Company applied to the West Virginia commission for authority to raise rates for service in West Virginia. The company sought an increase of annual revenues from this intrastate business amounting to slightly more than 22 per cent. Most of the additional revenues were proposed to be drawn from residential consumers, increasing

their rates by about 56 per cent. The commission found that the annual revenues from the West Virginia service were in fact inadequate but allowed only a part of the requested increase.

Interstate and Intrastate Operations

Much the greater part of the operations of the company are interstate in

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character, and of its total volume of sales approximately 9 per cent is at retail in West Virginia. The company purchases large quantities of southwest gas, much of which is transmitted through its West Virginia facilities to other subsidiaries of the Columbia Gas System, of which the applicant is a part.

Nearly all of the gas supplied to customers in West Virginia, however, is produced or purchased locally, and the sale of a small amount of southwest gas in the state is dictated by considerations of overall economy of operations. As the company has expanded its interstate operations in the southwest gas in recent years, it has been compelled to sustain larger operating costs and was obliged to make heavy investments in transmission and storage facilities. Most of these facilities are located in West Virginia.

Rate Base and Rate of Return

The commission approved the use of a net original cost rate base and chose a test period of twelve months. Since the rate base would vary during this period, the average of the rate base figures for the beginning and for the end of the period was adopted. A rate of return of 6½ per cent—slightly above the 6 per cent figure said to be generally regarded as fair and reasonable—was allowed, and it was considered sufficient to relieve certain inflationary burdens complained of by the company.

The Allocations Theory

In determining rates for local service, the commission analyzed in detail both the allocations theory and the separations theory as they applied to the facts of this case. While the former theory was rejected in favor of the latter, yet the commission's observations with respect to the allocations

theory seem worthy of special notice.

The theory, as applied to this case, is based upon the premise that the total costs of service for system-wide operations should be assigned to intrastate customers in West Virginia in proportion to the ratio between the volume of gas they consume and the volume of gas consumed by all customers. The application of the ratio is further refined as to volumes of gas consumed during the entire test period (commodity factor) and as to the volume demands of a peak period (demand factor). A peak period of a month, in this case, was considered satisfactory.

The use of the commodity and demand factors was necessary to an equitable apportionment of costs since the company's peak period service entailed greater costs than normal service. The demand factor was found to be higher as to the West Virginia customers than it was with respect to most of the company's interstate customers, and this circumstance was duly accounted for in the computations.

After it was ascertained what portion of each of several major divisions of the costs of service was associated with each functional operation of the company, the commission then applied the allocation factors to determine the gross revenue deficiency.

The Separations Theory

The separations theory, on the other hand, as here applied, is founded upon two distinct premises. The first premise is that rates applicable to the West Virginia intrastate service should be based upon the costs of gas produced or purchased in West Virginia rather than upon the higher costs of southwest gas. Since the company's supply of local gas is ample to meet its local demands and is actually being used to meet them, no good reason

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appeared to the commission why the local rates should not be based upon the cost of local gas.

Nor was any justification apparent for penalizing West Virginia customers merely because the company chose to use West Virginia as a mixing station for southwest gas intended for other markets. The commission pointed out, moreover, that the question is of grave importance to West Virginia, since the economy of the state has become geared to the natural advantage of an abundant supply of local gas at reasonable costs.

The second premise of the separations theory is that the only facilities of the applicant used or useful in the service of its West Virginia customers are those located within the state, and that the only costs of service incident to its West Virginia intrastate business are those associated with such plant. Costs of service, however, must again be assigned, as in the other method, to those utility operations with which they are associated, and certain allocations must also be made because much of the intrastate business in West Virginia involves interstate operations.

It should be noted that in applying this method the nominal costs associated with the transmission of large quantities of southwest gas intended for interstate use and carried for a very short distance through the company's West Virginia facilities were not averaged in with the other intrastate transmission costs since it would reflect an unduly low transmission cost for intrastate business.

Objections of the applicant to the sepa-

rations method on constitutional grounds were found to be without merit.

A Brief Comparison

It will be observed that by applying the method of allocations the West Virginia customers would be burdened with the high cost of southwest gas that they do not consume, while under the method of separations the actual cost of locally produced gas, which constitutes the principal supply of the local market, is assigned directly. The burden imposed upon the West Virginia customers by the former theory is thus eliminated by the latter.

Furthermore, by the allocations method large amounts of southwest gas which never went through the West Virginia transmission facilities were included in arriving at average costs. When allocations were made upon a volume basis, it resulted in allocating an unreasonably small amount of the transmission costs to the West Virginia business. But the margin of error with respect to the limited allocations used in the separations method is less under that theory than under the allocations theory proper, because in the former study the allocations deal only with the West Virginia properties and the costs incident to their operation.

Because of the circumstances under which the applicant operates, the commission was of the opinion that the separations study was the more realistic and accurate of the two. It therefore adopted the computations by that method and ordered new rates accordingly. *Re United Fuel Gas Co. Case No. 4125, August 26, 1955.*



Conversion to Natural Gas Allowed

THE New York commission authorized the Niagara Mohawk Power Corporation to convert its gas distribution sys-

tem in the city of Hudson to straight natural gas. The plant involved was not integrated with the rest of the company's sys-

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tem. The commission found, however, that the introduction of natural gas would guarantee a greater adequacy of supply, result in a material reduction in the average rate paid (an average of 10 per cent), and convert an unprofitable operation into one upon which the company would earn a return upon its investment.

The commission did not rule upon

whether the company should retire, or be permitted to retire, its propane plant or whether it should be retained as a stand-by facility.

Nor did it prescribe proper accounting for any property which might be retired as a result of the conversion. *Re Niagara Mohawk Power Corp. Case 17340, August 8, 1955.*



Court Uses Fair Value Rate Base for Gas Company After Ruling on Cost Allocation

THE district court of Webster county, Iowa, issued an order preventing the city council of Fort Dodge from enforcing an ordinance determining rates for a gas company (Iowa-Illinois Gas & Electric Company). Since Iowa has no regulatory commission, utilities usually fix their own rates, subject to "home rule" regulation by city ordinance. The court held that the ordinance rates were unconstitutional. One of the principal objections to the ordinance was that firm rates were not changed while interruptibles would bear the entire burden of the increase.

Apportionment of Costs

The court followed generally the separation procedures used by the city council. It was necessary to separate the plant, revenue, and expenses assignable to the company's metropolitan operation from its operation as a whole, and then to apportion the proper amount to firm and interruptible customers. The court explained many details of the allocation, particularly regarding cost of service generally, collection expense, administrative expense, and the apportionment of the rate base.

No economic basis existed for separating costs between customers within and customers beyond the artificial city boundary. The court commented that the same

main in some instances would first serve rural customers, next townspeople, then run down a city line and be tapped by urban and suburban dwellers alike, and finally end in the country.

The city used the Stanley method of allocating administrative and general expense. This was described as a variation of the Wisconsin formula modified to meet the peculiarities of this case. The court did not consider the city's choice of this method unreasonable in the present proceeding.

Method of Valuation

This court chose the fair value method of determining a proper rate base. It justified its choice, first, on the ground of precedent and cited *Cedar Rapids Gas Light Co. v. Cedar Rapids* (1912) 223 US 655. The court also observed that fair value was the most reasonable rate base.

Theoretically, the cost of reconstructing plant at today's prices should be the base on which a utility is allowed a return. Present, not historical, cost is the important consideration. The fair value doctrine, however, does not go so far as pure reproduction cost. The court described fair value as a compromise, a composite figure, nothing more than an average of dissimilar factual valuations of private property.

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The stockholders do not get the highest amount, nor the consumer the lowest.

End Result Test

The "end result" test advanced by the Hope Natural Gas Case (1944) 320 US 591, 51 PUR NS 193, was quickly disposed of. The court made this comment on the Hope decision:

The rate should be approved if it appears fair. But fair by what standard? The fair value doctrine is uncertain enough without throwing away all yardsticks.

The end result test may be acceptable for high federal commissions but in Iowa, where city and town councils pass on utility rates, their method "would cast us on an uncertain sea and decision would not be by rule but by individual conceptions of justice."

Original Cost

The city urged the use of original cost. The court said that this makes rates too rigid. In today's market the owners of the equity (stockholders) are hurt by original cost.

In a period of falling prices the ratepayers would "feel the pinch." Adherence to original cost, the court elaborated, neither gives the stockholder a real income in high times nor the ratepayer a real rate in low. Fair value tends to keep income and rates stable in terms of reality.

Stockholders' Position

The court disputed the claim that the utility owner has such a sure thing that his stock is really a bond. The stockholder is a risk taker, not a creditor. The fact that a utility has a franchise cannot be said to guarantee success. All the franchise does is guarantee a fair race. To think that the

risk is eliminated because of the "captive market" is to forget numerous companies which failed in the not too distant past with stockholders wiped out and bondholders unpaid.

Original cost, the court conceded, makes regulation easy but it gives away something more valuable. It takes the enterprise out of the utility and puts it in a "regulatory strait jacket." Everyone likes certainty but there are areas in the law where justice calls for judgment and opinion. It is not always possible merely to add up numbers. This company's property was valued in 1939 when prices may have been lower than original cost. Whether the present phenomena be called "imbedded inflation" or a new price level, it has been here long enough, the court said, to require that another look be taken at the company's rate base.

Rate Structure

The problem of determining the distribution of the rate increase between firm and interruptible customers was a difficult one.

Two principal questions are involved: (1) What increase will the interruptibles pay? (2) What increase ought they pay? To answer these questions the court considered three figures regarding interruptible service: (1) theoretical cost, (2) competitive price, and (3) incremental expense.

Theoretical cost is what it costs to serve the particular class when all expenses fairly allocable to that class are charged against it. The competitive price is the rate at which industrial customers will still buy gas for heating instead of other fuels. Incremental expense is the extra cost involved in serving an additional class over a given class on the additional cost involved in an additional output. Based on these definitions, the court decided that a

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marginal class, such as interruptibles, ought to pay as near its theoretical cost as the competitive price will permit but not less than the incremental expense involved.

The suggestion that the company could obtain needed additional revenue simply by increasing interruptible rates was rejected, first, because by doing so the interruptibles would be charged more than their theoretical service cost, and, secondly, because of the relationship between revenues and allocated expenses. If the interruptible rates alone were raised, a revenue increase in excess of the present deficiency would

be required because some interruptible expense would also go up.

Finally, the court summarized its opinion with this comment:

The expenses against the firm load have been shaken down, and everything questionable shaken out. Still a substantial deficit remains. It cannot be placed on the interruptibles. The ordinance rates are unconstitutional.

Iowa-Illinois Gas & E. Co. v. City of Fort Dodge et al. Civil No. 34033, August 20, 1955.



Independent Contractor Denied Common Carrier Plates

THE Massachusetts supreme court affirmed a commission decision denying a motor carrier's application for common carrier plates to be attached to vehicles owned and operated by another person under a contract with the applicant.

The court ruled that the relationship between the two carriers was not that of a lessor and lessee of vehicles but was a contractual one in which the common carrier contracted with the other carrier to perform part of its work.

Evidence of Relationship

The court carefully scrutinized the agreement between the two carriers and found that the alleged lessee was required to furnish vehicles, operating licenses,

packing materials, labor, and tools; to carry insurance on the vehicles and unemployment insurance and liability insurance on the employees; to use his vehicles for the exclusive use of the common carrier; to carry fidelity bonds safeguarding the carrier against any default; to deliver money collected; to keep vehicles in good repair and pay operating costs.

The court also noted that the alleged lessee was paid a percentage of the funds collected by it on behalf of the carrier. Under all these circumstances the court concluded that the carrier was engaged in the transportation of property for hire and was not entitled to common carrier plates unless and until it obtained a common carrier certificate. *Greyvan Storage, Inc. v. Massachusetts Department of Public Utilities*, 127 NE2d 579.



Commission Sustains Plea of *Res Adjudicata*

THE Louisiana commission has dismissed a proceeding brought by an individual to secure an order compelling a railroad to provide service over a spur track located on neighboring private prop-

erty. This matter had previously been before the commission, and a denial of the relief sought was upheld in court.

Upon the institution of this proceeding, the railroad asserted that the question

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sought to be determined had already been adjudicated. It, therefore, filed a plea of *res adjudicata* which was sustained as a complete defense.

The commission pointed out that, while its jurisdiction is a continuing one, it will not, nevertheless, entertain a proceeding, the subject of which has been once finally adjudicated where no material change in

the facts or the law is alleged, as was the case here. The contention of the applicant that *res adjudicata* could not be availed of before an administrative regulatory tribunal, was overturned by authorities quoted in the commission's opinion. *Burke v. Guy A. Thompson, Trustee, New Iberia & N. R. Co. et al. Order No. 6744, No. 6626, May 13, 1955.*



Western Union Wins Ticker Rate Increases

THE United States court of appeals has upheld an order of the Federal Communications Commission allowing rate increases for tickers furnished by the Western Union Telegraph Company to its customers. The petitioner, Chicago Board of Trade, presented for the court's determination numerous objections to the commission's action, most of which were discussed in the opinion.

Determining a Single Rate

It is to be observed that the revenues from the ticker service constituted only a minute part of the company's total income. Since the rates for tickers were only one kind of rate among many others applied in the operations of the company, the standard established for system-wide determinations of rates was considered inapplicable in this case. The practical impossibility of making precise calculations of costs and return for such a minute segment of a large business was pointed out, and it was further noted that, in achieving a fair rate of return for a whole system offering many services, rates charged on some services must necessarily be above the norm, while those on other services are below it.

The reasonableness of a single rate among many other rates of a large utility business, said the court, depends upon the

value, volume, and other characteristics affecting the commodity concerned, but whether the revenue yielded by all the rates of the utility affords a fair return has only a remote bearing on the reasonableness of a rate on a single article of traffic. Consistent with these propositions, the commission had calculated a rate base per ticker and then computed a rate which would provide a return of $7\frac{1}{2}$ per cent. This procedure was held to be proper, and no further comment was made upon the reasonableness of the return.

Particular Ticker Rates

The petitioner objected that in determining the rate base the commission made no allocation of costs and revenues between machines leased to customers for their operation and those furnished to render quotation service provided by Western Union itself. The court said no separate allocations were necessary since the tickers used in both cases were of the same type and the cost figures used by the commission were calculated per machine and were not a total cost for all tickers in service. Nor could a rate established for one of the services be considered discriminatory merely because it was different from the rate fixed for the other, since the two services were obviously different.

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The board of trade, which used normal speed tickers, contended that the rate charged for high-speed tickers was discriminatory to normal speed ticker users, pointing out that the faster machine could transmit 66 $\frac{2}{3}$ per cent more information in a given time than the slower one, while the rate for the high-speed ticker was only 25 per cent greater than the other. But neither the commission nor the court could discover how the petitioner was to benefit by an increase in the rates for tickers operated at high speed. It was observed that the differential between the two rates was consistent with a long-established relationship between similar rates, and the court noted, moreover, that a difference

in rates need not reflect the full difference in the value of service rendered.

It was further claimed that the commission erred in fixing a rate base for maintenance tickers, which were kept on hand by the company to meet emergency demands of its customers. The court ruled, however, that the commission proceeded properly in founding the rate base for this item on the ratio of maintenance tickers to tickers on customers' premises.

Notwithstanding other objections of the petitioner, the court found ample evidence in the record to support the order of the commission in its entirety. *Chicago Board of Trade v. United States et al.* 223 F2d 348.



Views on Rate Proposals of Strike-bound Transit Company Facing Franchise Termination

THE District of Columbia commission dismissed a proceeding involving the Capital Transit Company's fares because the proceeding was rendered moot when the company's rates were established by commissioners of the District of Columbia pursuant to a special act of Congress. The new law, enacted to break a 52-day transit strike in Washington, D. C., provided that the company's franchise should terminate within one year. The rates set were 20 cents cash, five tokens for 95 cents, and a weekly permit for 90 cents plus 10 cents per ride. This amounted to about a 10 per cent increase.

Although the commission dismissed the proceeding, it said that in view of the public interest in an understanding of the factors involved in the transit strike and the misinformation and misconceptions which had been disseminated concerning it, particularly as they concerned the issues in the commission proceeding and the time factors with respect to it, a brief consideration of these factors was necessary.

The commission believed that a summary disposition of the rate case, involving complex issues, would have involved a violation of its statutory responsibilities and a denial of due process. But, in order that no misunderstanding of its powers might unduly delay the resolution of the labor-management dispute, it had issued a public statement of its authority to act expeditiously to grant a fare increase as a simple offset to increased labor costs. The parties did not avail themselves of this course of action.

The company contended that its rate base was set by book figures representing the historical cost of its property and that it was entitled to a 10 per cent return on that rate base. The commission said that such a limitation of the issues would be improper, and its apparent simplicity was spurious and deceptive.

Obsolescence Factor

The commission pointed out that the

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difference in the cost of furnishing transportation through the use of the economically obsolescent streetcar system operated by the company, compared with an assumed all-bus operation, was greater than the estimated increased cost of the final labor settlement. The capitalized value of the difference in such costs was indicative of the loss which had already accrued as a result of the economic obsolescence of streetcars as a method of furnishing a mass transportation service in Washington under present-day conditions.

More than one-half of the rate base on which a return was demanded consisted of such obsolescent property. Furthermore, a substantial part of the annual depreciation accrual, included in the company's operating expenses, represented not an out-of-pocket cost but rather a return to the company of its investment in this obsolescent half of its system.

The loss in investment due to economic obsolescence was evident several years ago when the present management acquired control. That group acquired the stock at a small fraction of its book value. Thus, in seeking a recovery based on book value, they were, in effect, asking the public to compensate them for a loss which had already been taken by others and which they had never incurred.

Even more important was the fact that the management acquired control not only over a functioning transportation system, but also over a book earned surplus and cash in a per share amount greater than the price they paid for the stock. This cash and surplus had been derived from high wartime earnings and, in part, from the freeze on wages during the war period.

The willingness of the seller, which had no apparent reason for enriching others at its own expense, to sell on this basis and the willingness of regulatory bodies to approve the sale and acquisition, were ap-

parently based upon a recognition that this so-called earned surplus was in reality an offset to the loss in value resulting from accrued economic obsolescence of the system. The commission concluded that on this basis dividends paid out of the so-called earned surplus might well constitute a recoupment of original stockholder investment which they would not be entitled to have returned again.

Loss of Patronage

The commission had retained an expert in urban sociology to study the impact of fare increases on the riding public. In this connection it was also impelled to consider the effect of a rate increase in causing a decline in the use of mass transportation, which in turn would result in a decrease in revenues, evoking a new demand for a further increase which would result in a further decline in use, and so on. The effect of this sequence on both investors and riders should be considered.

The commission submitted these problems to make clear the extent of the abdication of its responsibilities which would have been involved in acceding to demands that it summarily grant the requested rate increase.

In conclusion, the commission noted and emphasized that the problems which have arisen from the obsolescence of streetcar properties would not be present in the case of a new operator of mass transportation in the area. It believed that a modern bus system could provide adequate service at reasonable rates and earn a fair profit.

Special Concurring Opinion

Commissioner Weston concurred in dismissal of the proceeding but did not concur in rates recommended by the commission and approved by the District commis-

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sioners. In considering the company's revenues, particularly with respect to the loss of traffic attributable to the service stoppage during the 52-day strike, he did not believe that future riders should be charged with these revenue losses.

Such a charge, he believed, would be proper in case a utility sincerely interested in continuing to operate with maximum economy was subjected to a strike for increased wages. Labor relations, in his opinion, should be the exclusive prerogative of utility management. But, in his opinion, these principles do not apply where the interest of the utility is not in operation of the business, but in liquidation, and when the strike in question appears to have been prolonged, if not provoked, as part of a general plan to cease operations altogether.

Operating Expenses

Conversion to all-bus operations would have reduced operating expenses and depreciation substantially. He believed that in an economical and efficient operation, conversion would have been started at least three years ago and would have been at least 50 per cent completed.

Commissioner Weston recognized that the company was burdened with electric railway property as to which obsolescence had fully accrued, due to "change in the art" of transit operations. But, he said, the company had made no effort to reduce or relieve this burden. Consequently, he would place this burden on stockholders, rather than on transit riders. *Re Capital Transit Co. PUC No. 3527/32, Formal Case No. 445, Order No. 4218, September 2, 1955.*



Consultant Violates Commission's Standard of Conduct

A **T**RAFFIC consultant, retained by a motor carrier to obtain the necessary commission permission to transfer certain operating rights, was held by the New York commission to have violated standards of conduct required of all persons appearing before it. The commission instituted an investigation on its own motion because it had been adduced that although the consultant had been paid to process the application, he had failed to do so for a period of six months and he had given "untruthful" reasons for his neglect.

The consultant set up as a defense the fact that he had not received from the transferor certain financial data required in the type of application he was supposed to make. He also testified that he was aware of the precarious financial condition of the transferor and, therefore, could not file the transfer application in good faith unless this financial weakness was made

clear to the commission. This, he asserted, was his primary reason for not carrying out his assignment. The commission called this defense weak because the consultant had long represented the transferor as a consultant on various matters, and he either had access or must have had means of acquiring the needed financial data.

Delay to Protect Individuals

Another, and completely different, line of defense was also advanced. The consultant felt that it was his obligation to protect the interests of the members of the transferor partnership, particularly those of a personal friend who was retiring from the business. In his view, the legal instruments by which the old partnership was succeeded by the new (which had been prepared by attorneys) did not contain sufficient safeguards to protect his friend's personal interests. For

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this reason, "secondarily," he testified he held up the filing of the transfer application. In other words, said the commission, by his own admission he deliberately delayed the applications out of consideration for the individual interests of the members of the selling partnership *inter se*, since he was under the impression that some of them required greater protection than the agreement drawn by their lawyers provided.

The commission concluded that the "secondary" explanation would seem to refute completely his "primary" reason for neglecting to carry out his assignment. No matter how it was evaluated, this "secondary" consideration represented nothing more than an intrusion by the consultant into a field in which he lacked

competence and in matters in which he had not been retained. At the very least, this constituted the representation of conflicting interests without disclosure to the parties involved. The commission observed that any lawyer so conducting himself would be in clear violation of Canons 6 and 37 of the Canons of Professional Ethics of the New York State Bar Association.

Upon these findings the commission concluded that the consultant should be deprived of the privilege of appearing before it in a representative capacity pending further order. It provided, however, that it would consider an application from him at the end of the year for vacation of the order. *Re Walsh, Case 17180, August 9, 1955.*



Mutual Association Exempt from Commission Jurisdiction

THE Missouri commission held that a company, formed by a group of individuals to build and install telephone equipment whereby they could furnish telephone service between themselves and other people in the community, was not a public utility subject to its jurisdiction. The company had never been incorporated.

When the proceeds paid into the treasury were insufficient to pay current expenses, some of the individual members would furnish money for that purpose. These parties have always regarded them-

selves, and have been regarded by the public, as the owners of the company.

None of the parties ever received any profit or remuneration from the profits of the company, nor did they expect to receive any profit. The commission concluded that the company was a voluntary association operating telephone lines for the personal convenience of its members, not conducting telephonic communications for hire, and, therefore, not a public utility subject to its jurisdiction. *Re Lakenan Teleph. Co. Case No. 13,131, July 27, 1955.*



Acquisition and Consolidation of Telephone Exchanges to Improve Service

THE Missouri commission authorized a telephone company to acquire and consolidate certain telephone properties, where the project would bring telephone service to a territory which had been with-

out the service of a regulated utility. In the areas where regulated exchanges were to be acquired, the quality of service would be materially improved. The commission found that the consolidation of the ex-

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changes with the territory sought to be served by the company should produce a unit with sufficient size and potential to be economically feasible.

Although rates were not an issue in the proceeding, it was pointed out that the investment required for the type of telephone plant proposed would necessitate higher rates.

The evidence indicated, however, that

the subscribers in the territory were willing to pay the higher rates for the superior service to be provided. The project had received considerable local publicity, and yet no one appeared in protest. The commission also found that the company was qualified and capable in all respects to operate a telephone system. *Re Northeast Missouri Rural Teleph. Co. Case No. 13,042, July 8, 1955.*



Stock Issue under Book Value Authorized to Stockholders

THE Colorado commission granted authority to an electric company to issue and sell 7,313 additional shares of its common stock to its common stockholders pro rata at a price of \$40 a share. In the event that all of the new stock was not taken up by the stockholders, the company was further authorized to offer any remaining shares to its employees at the same price or, finally, to the general public if necessary. The proceeds of the issue were intended largely to satisfy current indebtedness and, also, to pay for certain plant improvements.

Equity Ratio and Book Value

The commission observed from the balance sheet presented with the application that the issuance of the new stock would raise the ratio of common and preferred stock equity to total capitalization to 55.6 per cent. The balance sheet further disclosed that the book value of outstanding common stock was approximately \$43.50

a share, or \$3.50 over the price of the new stock. No unreasonableness or difficulties were found by the majority of the commissioners in either of these particulars.

Dissenting View

The differential of \$3.50 a share, however, occasioned much concern to a dissenting commissioner who maintained that the common stockholders, in purchasing the new issue at less than the book value of outstanding common stock, would secure a "windfall," while if, as he recommended, the issue were offered directly to the public, the new shares could be sold at book value, and the total proceeds realized by the company would be thereby considerably enhanced. He also expressed the view that such additional funds might be used as a basis for a reduction of rates "rather than an enrichment of the present stockholders." *Re Home Light & P. Co. Application No. 13514, Decision 44455, July 27, 1955.*

Other Recent Rulings

Evidence as to Contract Rates. The Federal Power Commission reversed a ruling by an examiner which overruled an objec-

tion to questions relating to the reasonableness of rates and charges contained in contracts renegotiated between a gas trans-

PUBLIC UTILITIES FORTNIGHTLY

mission company, the rates of which were under investigation, and certain producer-suppliers, where the charges for gas supply had been filed and had become effective under the provisions of the Natural Gas Act. *Re Tennessee Gas Transmission Co. Docket No. G-5259, July 14, 1955.*

Evidence as to Suppliers' Rates. The Federal Power Commission sustained a ruling by an examiner excluding, in a case involving rates of a natural gas transmission company, questions relating to increased rates and charges of producer-suppliers, where such increased charges had become effective by filing under § 4(d) of the Natural Gas Act. *Re Tennessee Gas Transmission Co. Docket No. G-5259, July 14, 1955.*

Gas Certificates. In considering which of two rival applicants was better qualified to render gas service to an airport under construction, the Missouri commission gave consideration to the fact that there would be a substantial additional need for service in the area because of the growth of the area which would result from the completion of the airport, and this would bear on the question of ability to serve. *Re Gas Service Co. Case Nos. 12,632, 12,674, May 24, 1955.*

Security Issues by Subsidiaries. The Securities and Exchange Commission, in passing upon the applications of two subsidiaries of the same holding company for authority to issue short-term notes, considered not only the capital structures of the subsidiaries but also the effect of the financing from the viewpoint of the holding company's system as a whole, to determine whether the proposed issues were reasonably adapted to the security struc-

ture not only of the issuing companies but also of other companies in the holding company system. *Re Milwaukee Gas Light Co. File Nos. 70-3392, 70-3395, Release No. 12954, July 29, 1955.*

Automatic Flasher Lights. The Ohio supreme court refused to substitute its judgment for that of the commission in a proceeding in which the commission determined that automatic flasher lights and short-arm gates were required at a grade crossing. *New York Central R. Co. v. Ohio Pub. Utilities Commission, 127 NE2d 208.*

Private Crossing. The Wisconsin commission refused to assume jurisdiction over a petition for a grade-crossing alteration where the road intersecting the railroad right of way appeared to be a private farm driveway even though it had been maintained and plowed clear of snow at public expense for about twenty years. *Re Town of Emmet, 2-R-2913, August 4, 1955.*

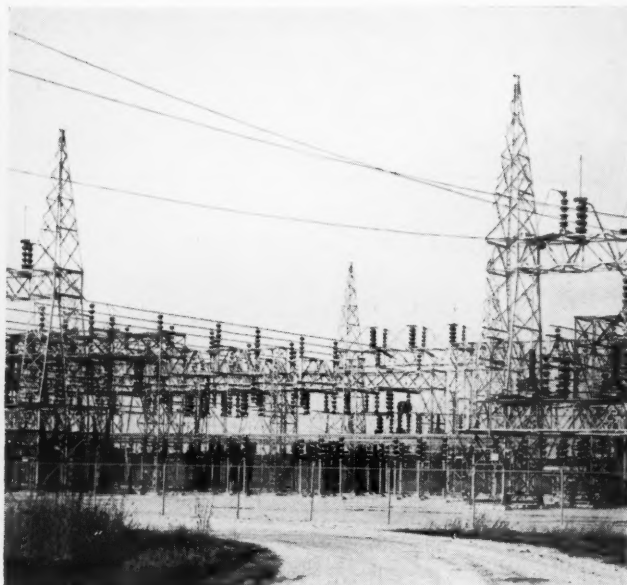
Highway Crossing. The fact that a number of persons were in the habit of using a certain place as a crossing, held the Pennsylvania supreme court, did not make the place a public highway crossing subject to the jurisdiction of the commission where there was no public right of passage. *Delaware, L. & W. R. Co. v. Shuman, 115 A2d 161.*

Fines and Penalties. The Missouri commission has held that it may not impose a penalty upon a telephone company for violation of an accounting order unless the company has been served with a copy of the order. *Re Joste (Cuba Teleph. Co.) Case No. 12,943, July 27, 1955.*

DELTA-STAR

A DIVISION OF
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H. K. PORTER COMPANY, INC.

helps reduce outdoor substation costs



**Gain specialized experience, engineering advantages,
and complete satisfaction with DELTA-STAR on the job**

When planning a new outdoor substation, take advantage of DELTA-STAR's standardized engineering and production methods. You save money in the process—and need not sacrifice your special requirements.

Simply provide a one-line diagram of your proposed installation—for any type of station or any voltage rating. Add information about ground space available, arrangement and height of circuits. DELTA-STAR engineers then go to work for you.

You receive complete construction drawings. When drawings are approved, steel structures are fabricated and galvanized under rigid DELTA-STAR engineering control. All component parts are made ready or provided from stock—from anchor bolts to switch operating mechanism. Assembly and erection is quick and easy.

The result? You hold engineering and erection costs to a minimum. You gain satisfaction of a job well done. To gain these advantages, check DELTA-STAR for your next installation.

When you want the best in outdoor substations, specify DELTA-STAR.

DELTA-STAR ELECTRIC DIVISION

H. K. PORTER COMPANY, INC.
OF PITTSBURGH
2437 Fulton Street • Chicago 12, Illinois
District Offices in Principal Cities



Here's Proof of Performance...



Mr. Thompson with one of their "new-looking" 20-year poles.

Pressure-Creosoted poles installed in 1916 still in service!

• The length of service received from any type of equipment is usually the truest test of its value and real cost. This is certainly the case with pressure-creosoted utility poles. Take the record of the Iowa-Illinois Gas & Electric Co., of Davenport, Iowa.

This utility, which serves 100,000 residential and commercial customers in both urban and rural areas, has been using pressure-creosoted poles for a long time. "Creosote-treated poles last even longer than we had expected when we originally

purchased them. We've been using them since 1916 and still do not know when a creosoted pole can be called old," says Mr. William Thompson, construction supervisor. "Many of our oldest poles have been removed from their original locations. In at least one case that I can recall, poles installed in 1923 were pulled out of a 25-mile stretch in 1944, found to be in excellent shape and reinstalled in rural areas in 1945."

Mr. E. F. Miller, manager of Iowa-Illinois Electric Transmission and

Distribution Division, adds, "In 1945 and 1946, we pulled out about 300 creosoted poles that were over 30 years old. Only 3 poles had to be junked . . . the rest were put back into service in various rural lines."

A good record? Certainly, but not unusual when you use utility poles pressure-treated with a good grade of creosote—like USS Creosote. For more information on this quality wood preservative, contact our nearest sales office or write to United States Steel Corporation, 525 William Penn Place, Pittsburgh, Pa.

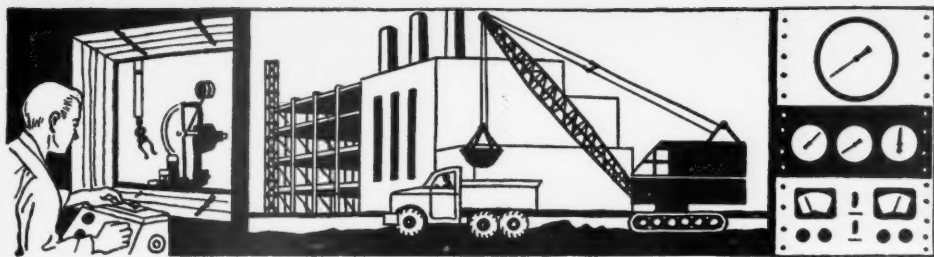
You can obtain clean pressure-creosoted poles upon specification without sacrificing pole service life.

USS CREOSOTE

SALES OFFICES IN PITTSBURGH, NEW YORK, CHICAGO, CLEVELAND, SAN FRANCISCO AND FAIRFIELD, ALA.

UNITED STATES STEEL





Industrial Progress

The Role of the Gas Refrigerator

By Duncan C. Menzies
President of Servel, Inc.

With each passing day, one truth becomes increasingly evident—that the destinies of Servel and the American gas industry are inseparably welded together. Each needs the other. Neither can prosper fully without the other's support.

As the nation's only manufacturer of gas refrigerators for 29 years and a company which is constantly developing new and better gas products in both the refrigeration and air conditioning fields, Servel is of critical importance to the gas utility industry. Its 3,500,000 gas refrigerators in service are not only an extremely important source of revenue (estimated at over \$50 million a year), but they are perhaps the gas utilities' strongest piece of armor in protecting their kitchen load against powerful competition. Also, Servel's "all-year" gas air conditioners are helping to fill the gas industry's summer load valleys.

From the other side of the fence, Servel most surely needs the wholehearted support of the gas industry. Without it, the gas refrigerator cannot long survive. With this support, highly encouraging profits may accrue to the gas utility companies, to Servel and all those levels of distribution needed for full coverage of our market and maximum gas refrigerator sales. If Servel emerges from red-ink status next year—and indeed, we are confident it will—the reason will partly lie in the fact that gas utilities are adopting the Servel dealer-support plan by providing what we call the "elements of a gas refrigerator sale"—free installation, free service no-recourse financing, and other sales stimulants.

The new utility support program has revived interest in the gas refrigerator among appliance dealers and has prompted important distributors

all over the country to seek the Servel line. At latest report, 65 gas distributing utilities, representing 9,043,775 meters (almost 40 percent of the nation's total), had adopted the "elements of a sale" dealer-support plan.



DUNCAN C. MENZIES

Six months ago, only five utility companies, representing only 9 percent of the total meters, were giving all-out support to gas refrigerator dealers.

Some measure of the effect of this new-found gas utility support may be found in greatly increased sales of Servel gas refrigerators during the spring and summer months. Factory billings are up over last year—67 percent for the five months through August, and 111 percent for August alone.

But it is no final crowning achievement to have enlisted the support of gas utilities serving nearly 40 percent of America's meters in a program which has the far-reaching effects of increasing dealer sales, increasing the gas industry's residential load, and insuring the gas load in the American kitchen. Much work remains to be done. By the end of 1955, we hope to have enlisted the support of gas companies serving at least 60 percent of the nation's meters.

It is no myth that the gas refrigerator is "profit insurance" for the utility. Studies show that the refrigerator is seldom the first gas appliance to be purchased by the customer. The range is usually first, the water heater second, and the refrigerator third. Little profit, if any, is realized by the gas utility company from the one-appliance home. Installation of a second appliance brings a small profit, but it is not until the third is added that a real profit is assured.

It is likewise no myth that the gas refrigerator is the best insurance the gas utility industry has to influence home owners from deciding to change from gas to competitive fuels. With only a single gas appliance—such as a range, which may be ready for replacement, anyway—the home owner may be easily persuaded to change fuel. With a gas refrigerator, usually the third gas appliance, the chances of change are much more likely.

Many gas utility companies have realized the close relationship between the foregoing facts and Servel's "elements of a sale" plan, and we can all derive inspiration from the successful sales records some of them have chalked up since putting the plan into effect.

In the first few weeks after six gas utilities in Boston and environs adopted the plan, 42 new dealers selling gas appliances exclusively were added. These dealers sold 131 gas refrigerators during that period.

In Pittsburgh, where three gas utility firms are sponsoring hard-hitting promotions in addition to supporting the "elements of a sale" plan, gas refrigerator sales in August soared to a level 414 percent above that for the same month last year. Forty-five new Servel appliance dealers have been added, more are expected, and practically all former dealers have been reactivated.

In the Philadelphia Gas Works
(Continued on page 36)



PROGRESS IN SAFETY

Safety for the gas customer and to gas company employees is of prime importance to company management. One of the most significant advancements in safe operating practice is the use of the Mueller No-Blo® Method.

The No-Blo Method is an operating procedure that allows all connections to be made under pressure with no escape of gas—assuring safe working conditions for the employee. The positive confinement of gas at all times and the rugged construction of Mueller Products assures prolonged safety for the customer now and in the future.

If you are not familiar with the safe Mueller No-Blo Method and the complete line of Mueller No-Blo Equipment, contact the local Mueller Representative in your area. He will be happy to refer you to other companies who are taking advantage of safe operating procedures and will be happy to explain the application and use of the complete line of Mueller No-Blo Equipment.

MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

INDUSTRIAL PROGRESS—(Continued)

territory, 45 new strategically-located Servel dealers were added and 178 gas refrigerators were sold by these new outlets during the first four weeks after the plan was instituted. The PGW policy includes a dealer floor plan in addition to the three basic "elements." "Dealers really sell when profits are guaranteed," Jim Nichols, PGW sales manager, told us.

In the Milwaukee Gas Light Company territory, Servel was able to hand-pick the 10 dealers it wanted after the utility had instituted an "elements-plus" plan. In addition to the basic "elements," Milwaukee Gas Light Company's policy provides free display models, free promotion materials, free sales training, free sales assistance and free TV and radio advertising.

Southern Union Gas Company, recognizing the tremendous value of making its own employees boosters of gas refrigeration, planned and carried out an energetic Personal Ownership program. As a result of the one-month campaign, an *additional* one out of ten Southern Union employees purchased a gas refrigerator. Incidentally, this was only one phase in one of the most complete appliance merchandising programs we've seen in a long time. It's no wonder that Southern Union's refrigerator sales are more than double those of last year.

In the Dallas-Fort Worth area of Texas, the Lone Star Gas Company has instituted a dealer development program which provides sales training and demonstrations and home calls by company home economists in addition to the three "elements."

"We recognize that one of the first essentials in this program will be developing a strong retail dealer organization," a Lone Star Gas spokesman told us. "We consider this so important that we are willing to provide the distributors and dealers with certain assistance in the installation and servicing of the refrigerator that goes beyond what we can offer in the support of any other gas appliance."

Benefits accrue to all parties under the plan.

"When you have all-out utility support, you can pick the dealers you want," observed a Servel field salesman in the Middle West. "And, when you have the right dealers, profits increase at all levels of distribution."

The United Fuel Gas Company, Charleston, W. Va., has added a dealer floor plan, home demonstration service and a dealer salesman contest to the basic "elements of a sale" program.

These are only a few random ex-

amples of what can be done.

What of the future? Servel's refrigerator line next year will feature a revolutionary use of color, an exclusive design achievement of Walter Dorwin Teague and Associates and increased performance efficiency. These new developments were originally scheduled to be incorporated in Servel's 1957 models. But preliminary surveys of consumer acceptance proved the new advancements to be such powerful sales stimulants that they will be introduced a year ahead of time. Top-of-the-line refrigerator models next year will again be equipped with Servel's exclusive automatic icemaker, which the company introduced to the world three years ago. This is the unique device that freezes ice-circles without trays, stores them in a container, and automatically replaces them as they are used. Where the consumer has had a choice between automatic ice-maker and non-automatic-ice-maker models, three out of five gas refrigerators purchased have been equipped with this unique convenience feature.

Servel's standards in product quality and performance were raised to new levels during the past year. Service problems on 1955 refrigerator models have been virtually non-existent. Performance milestones included the improvement of refrigerator cabinet temperatures under peak load conditions by several degrees.

On the air conditioning side, where sales potentials are increasing annually by leaps and bounds, Servel has started nation-wide field tests of a new experimental 3-ton lightweight "all-year" gas air conditioner, which is half the size and weight of other 3-ton models. If the tests confirm expectations, this compact direct-fired single-coil unit may well revolutionize the air conditioning world. Indeed, it promises to be a boon to the gas utility industry which so needs air conditioning volume for seasonal load balance. Price of the new model is expected to be lower than that of earlier 3-ton models when production starts next summer.

What of Servel's financial condition and consequently its ability to continue serving the gas industry? Our company's condition is sound. On September 1, the company completed repayment of \$6 million in bank borrowing—30 days before due, and now has no civilian bank loans outstanding. General operating expenses for the first nine months of 1955 were 29 per cent less than for the corresponding period a year ago. Servel will still

(Continued on page 38)

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Welcome,
AGA Delegates,
to
California



...where smart women cook with gas!



We're sure the meetings will help further
the progress of our great industry.

P·G^{and}E·
Pacific Gas and Electric Company

POWERS *American*

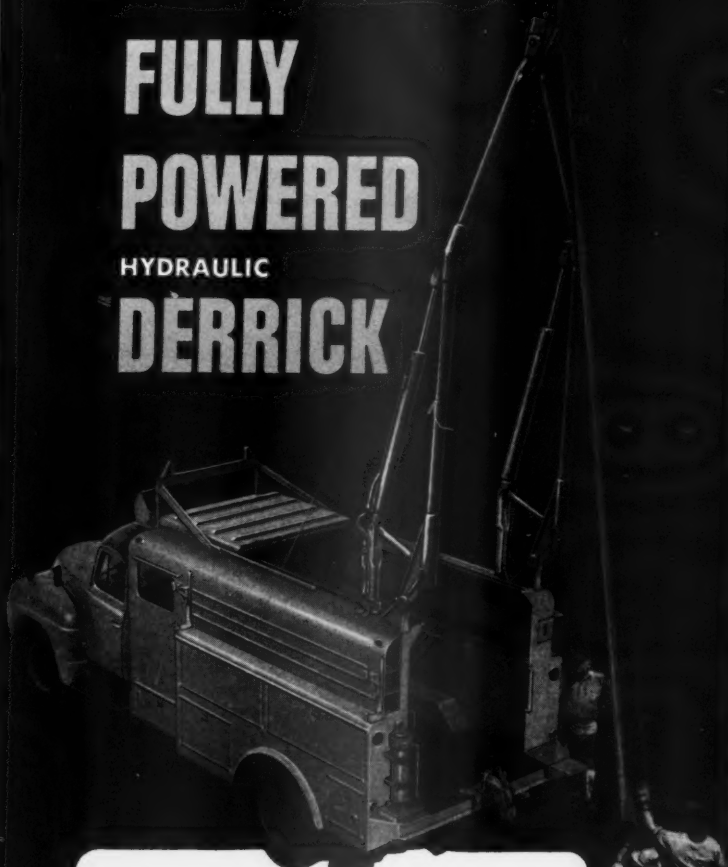
PRESENTS THE PM-2

Pole-Master®

**FULLY
POWERED**

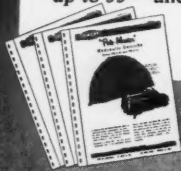
HYDRAULIC

DERRICK



It's here! The sensational PM-2 Pole-Master... with an operating arc *well in excess* of 180 degrees. "Live boom"—actuated by twin hydraulic cylinders—can be moved under load. Head sheave can be threaded from ground. Stows *completely* out of the way... without obstructing body load area or roof. Always ready for use *instantly*, at the flick of a single-lever control.

In three sizes... for poles up to 40'—for poles up to 55'—and for poles up to 70'—installed on a Powers-American Line Body that's right for your job.



Brochure describing Pole-Master Derricks—Series PM-2, Series HD-2, and Series HD-4—will be sent, with price information, upon request. No obligation, of course!

McCABE-POWERS AUTO BODY COMPANY

5800 NORTH BRADWAY • ST. LOUIS 15, MO. 825 CEDAR ST. • BERKELEY 10, CALIF.

INDUSTRIAL PROGRESS (Continued)

be in red ink at the close of 1955, but indications are that the company will probably be able to eliminate all losses in 1956.

Servel is dedicated to serving the gas utility industry. The company which first stirred mass public interest in gas with its "flame that freezes," and "miracle of ice from heat" has one of the gas equipment industry's largest staff of engineers and researchers. Servel is investing from two to three times as much of its budget dollar in research and product development as the average manufacturer. The company which produced the first gas-operated absorption-type refrigerator in 1926, the first air-cooled freezing system in 1933, the first one-piece steel cabinet in 1937, the first automatic ice-maker model in 1952, and more cooling-and-heating air conditioning installations than any other manufacturer knows that it cannot stand still in our competitive society. It either moves forward or it automatically is swept backward.

The gas industry can rely on Servel's unrelenting efforts to manufacture completely dependable quality products, to develop new products at lower cost, and to conduct constant research into new fields and applications for gas-operated products. With no letup foreseen in the national home building boom—\$92 billion of residential construction has been predicted for the next decade—and a promising long-range gas supply outlook, both Servel and the gas industry face a wide-open, challenging, though highly competitive future.

In 1948, more gas refrigerators were sold than in any other year in Servel's history. But I venture the prediction that, with the close cooperation of gas distributing utilities in providing the "elements of a sale," annual sales of gas refrigerators can be more than double, in the foreseeable future, the peak volume of 1948.

We have a long way to go to reach such a goal, but it can be done if we work together in exploiting our mutual opportunities.

Montana-Dakota Utilities to Spend \$9,928,000 on Construction

MONTANA-Dakota Utilities Company, Minneapolis, Minnesota, has received authorization from the Federal Power Commission to issue \$6,500,000 in promissory notes.

Purpose of the Notes is to provide temporary financing for part of the

(Continued on page 40)

Promotion paves the way for progress



"No modern community can grow faster than its public utilities."

U.G.I. endorses this statement with sincerity and has, therefore, aggressively promoted the use of gas in its fast-growing Eastern Pennsylvania service area. And . . . to complete the "cycle" . . . our ability to provide gas services in keeping with this growth has, in turn, helped to make Eastern Pennsylvania more attractive to more and more people as a place to live and to an increasing number of industries as a place to do business.

We like to feel that our acceptance of this responsibility to our customers and the community has in more than small measure contributed significantly to the tremendous

growth of "Delaware Valley, U.S.A." and the other surrounding areas that U.G.I. now services in Eastern Pennsylvania.

This growth, resulting in steady increase in the use of gas appliances, has naturally necessitated expanded and modernized plant equipment and improved systems of distribution. And we *continue* to make large investments in plant and service facilities with confidence . . . because GAS *continues* to be the outstanding all-round fuel VALUE. As long as we promote it as such we are certain of future progress.

UGI
THE UNITED GAS IMPROVEMENT COMPANY

CLOSE...



but not too CLOSE...



for a "BABY DIGGER"

Your local distributor will show you how

Clevelands dig more trench... in more places... at less cost.

THE CLEVELAND TRENCHER COMPANY • 20100 St. Clair Ave., Cleveland 17, Ohio



CLEVELAND

INDUSTRIAL PROGRESS (Continued)

cost of additions to the Company's fixed assets during 1955. The total estimated cost for the last half of 1955 is \$9,928,000, of which \$1,462,000 is allotted for major electric projects; \$5,847,000 for major gas projects; and \$2,619,000 for minor gas and electric projects and work orders.

4,900 Miles of Natural Gas Pipeline Authorized by FPC In Past Year

THE Federal Power Commission authorized construction of more than 4,900 miles of interstate natural gas pipeline during the 12-month period ended June 30, 1955, according to FPC Chairman Jerome K. Kuykendall.

The new facilities, which include nearly 260,000 horsepower in compressor units, have an estimated total construction cost of approximately \$465,300,000, Chairman Kuykendall said. The lines will increase the nation's gas transmission by 1,750,000,000 cubic feet a day.

The Chairman's report said that major projects—those having an estimated cost of \$700,000 or more each—accounted for about \$456,969,000 of the total construction cost. The larger projects, which will increase the daily delivery capacity of the individual transmission systems involved by more than 1,614,000,000 cubic feet of natural gas per day, are expected to benefit 113 cities of 50,000 population or over in 22 states and the District of Columbia as well as numerous smaller communities. These projects involve construction of approximately 4,600 miles of new pipeline and installation of compressor facilities totaling nearly 255,000 horsepower.

The largest single authorization during the 12-month period was issued to American Louisiana Pipe Line Company for its proposed Louisiana-to-Michigan natural gas transmission system. This project involves a main transmission line from a point near North Tepehate, La., to the Detroit, Mich., area. It consists of 1,004 miles of 30-inch main line, with 82 miles of 24-inch supply laterals, 86 miles of miscellaneous 6-inch to 12-inch supply feeder pipelines in Louisiana, and 30,000 horsepower in 3 main line compressor stations. Estimated to cost \$122,917,000, the project is designed to have an initial delivery capacity of 300 million cubic feet of natural gas per day for service to its affiliates, Michigan Consolidated Gas Company, Milwaukee Gas Light Company, and Michigan-Wisconsin Pipe Line Com-

(Continued on page 42)

The Chicago Daily Tribune.

VOLUME LXIV—NO. 241.

MONDAY, OCTOBER 9, 1935—SIXTEEN PAGES.

PRICE TWO CENTS.

CUBA GUARANTEES AMERICAN RIGHTS

Minister Quenda Denies That Under Privileges Are Granted Great Britain in New Treaty.

NO PROTECTION IN WAR

Law of Neutrality Would Prevent Interpretation of Warship Clauses, He Declares.

BY JOHN CALANCA FLAHERTY, Washington, D. C. (Special)—The minister of foreign affairs of Cuba, Don Quenda, today denied that the new treaty between the United States and Cuba, which grants American ships the right to call at Cuban ports, is a "privilege" granted to Great Britain. He declared that the treaty is a "recognition of the fact that the United States is a neutral power and that it has no right to interfere in the internal affairs of other countries."

SUMMARY OF The Daily Tribune.

MONDAY, OCTOBER 9, 1935.

THE SUMMARY—The summary of the day's news is given in this column. It includes the main headlines and a brief description of the events of the day.

LARGEST 2 CENT MORNING CIRCULATION IN THE WORLD.

WASHINGTON, D. C. (Special)—The minister of foreign affairs of Cuba, Don Quenda, today denied that the new treaty between the United States and Cuba, which grants American ships the right to call at Cuban ports, is a "privilege" granted to Great Britain. He declared that the treaty is a "recognition of the fact that the United States is a neutral power and that it has no right to interfere in the internal affairs of other countries."

INSURANCE RATES TOO HIGH, HE SAYS

Expert Declares That Mortuary Records Do Not Call for Such Enormous Expenditures.

AGENTS PAID TOO MUCH.

Effort of Companies to Exceed in Business Responsible for Piling of Policy Holders.

New York, Oct. 9.—(Special)—David Burke, former president of the American Insurance Association, today declared that the high rates of insurance are due to the fact that the companies are trying to exceed in business. He said that the mortuary records do not call for such enormous expenditures and that the agents are paid too much.

OLD DIOGENES IN SEARCH OF AN HONEST MAN.

Dioegenes—"Ah, what's the use?"



MAYOR ATTACKS TRACTION GRANT.

In Message Mr. Dunne Opposes Thirteen Objections to Proposed City Railway Ordinance.

"EVASIVE" AND "CHAPTY."

Points to Flaws, Both Fundamental and Trivial; Charges for Test Vote in Council Tonight.

Mayor Dunne made it perfectly plain tonight that he is opposed to the proposed ordinance of the Chicago City Railway Commission. He said that the ordinance is "evasive" and "chappy" and that it contains thirteen objections. He said that he would like to see the ordinance amended before it is brought up for a vote in the city council tonight.

50 YEARS OF HOLLAND DEPENDABILITY

For 50 years, Holland has been a name synonymous with dependability in the home heating equipment industry. Our furnaces are built to last, and our service is second to none. We have a national reputation for building good heating systems and installing them expertly. Our furnaces are the world's largest installer of home heating equipment, with more than 500 factory branches and sub-branches. More than 5000 Holland men are now continuing the Holland tradition of reliable furnaces and furnace service.

Chances are, your grandfather had a Holland Furnace in his home—for Holland has been a favorite for half a century. And with good reason. For Holland has built a national reputation by building good heating systems and installing them expertly.

Holland is the world's largest installer of home heating equipment, with more than 500 factory branches and sub-branches. More than 5000 Holland men are now continuing the Holland tradition of reliable furnaces and furnace service.

HOLLAND FURNACE COMPANY

World's Largest Installers of Home Heating Equipment, Main Office and Plants at Holland, Michigan

OCTOBER 13, 1935—PUBLIC UTILITIES FORTNIGHTLY

41

pany, subsidiaries of American Natural Gas Company. The gas will be used to meet increased demands and future requirements of existing customers in Michigan, Wisconsin, Iowa and Missouri.

During the preceding 12-month period, ended June 30, 1954, the FPC authorized a total of more than 6,400 miles of pipeline and installation of approximately 252,000 horsepower at a total estimated cost of \$500,881,000. Compared with the year ended June 30, 1955, these totals are higher for mileage and cost, but lower for compressor station horsepower. Facilities authorized for each of the two 12-month periods are designed to add approximately the same total amount of daily delivery capacity to the individual pipeline systems—about 1½ billion cubic feet.

Since February 7, 1942 (the date the certificate provisions of the Natural Gas Act became effective), the FPC has authorized a total of more than 64,000 miles of pipeline and nearly 4,400,000 horsepower in compressor units at a total estimated cost of more than \$4,852,000,000. Major projects

authorized during this 13½ year period are designed to add more than 23½ billion cubic feet of daily delivery capacity to the individual pipeline systems in the United States. However, the quantity of this additional natural gas actually to be delivered to the Nation's markets will be somewhat lower because in some cases the same gas will be transported through the new facilities of two or more pipeline systems.

Gas Industry Shows Gain In Sales and Revenues

TOTAL operating revenues of the gas utility and pipeline industry reached a record high of \$4,967 million for the twelve-month period ended June 30, 1955, the American Gas Association reported recently. This was a gain of \$573 million, or 13.0 per cent over the \$4,394 million in the same period a year ago.

Net operating revenues in this twelve-month period rose to \$655 million, a 14.5 per cent increase over the \$572 million a year earlier. Net income rose from \$441 million to \$482 million, an increase of 9.3 per cent.

Total taxes paid by the gas utility and pipeline industry during the twelve months ended June 30, 1955, rose to \$621 million from the \$553 million during the same period a year ago. Total taxes, including federal income taxes, represented 12.5 per cent of operating revenues for the gas industry in the last twelve months.

Gas utility and pipeline sales to ultimate consumers totaled 63,900 million therms in the twelve-month period ending June 30, 1955. This was an increase of 8.3 per cent over the 58,981 million therms sold in the same period a year ago.

On June 30, 1955, a total of 28.0 million customers, excluding approximately 240,000 customers receiving liquefied petroleum gas through utility mains, were receiving utility gas. This was a 3.7 per cent increase over the 27.0 million customers served a year earlier. Of this total, 25.8 million were residential customers on June 30, 1955, a gain of 3.7 per cent, or 914,000 more residential customers than a year ago.

For the twelve months ended June 30, 1955, natural gas sales totaled 60,477 million therms, an 8.5 per cent increase over the 55,743 million therms sold in the same period a year ago.

The 22.6 million natural gas customers on June 30, 1955, represented

80.9 per cent of the total gas industry customers. A year ago there were 21.1 million natural gas customers, representing 78.2 per cent of the total gas industry customers.

Sales of manufactured and mixed gas increased 1.6 per cent during the second quarter of 1955 while revenues from the sales were off 0.3 percent.

Northern Natural Gas to Build New Pipeline Facilities

NORTHERN Natural Gas Company, of Omaha, Neb., plans to construct new pipeline facilities in Texas and Iowa to increase the capacity of its system by 30,513,000 cubic feet of natural gas per day, to a new total of 1,130,569,000 cubic feet daily.

The new facilities, estimated to cost \$760,600, include a 2,000-horsepower compressor unit in Northern's Sunray, Tex., station, and approximately 6½ miles of 6-inch pipe paralleling sections of existing line in Iowa.

New Safety Records Set by Gas Industry

THE gas industry in the past few years has shown steady progress in reducing the frequency and severity of injuries to its employees. They have dropped with a high of 21.86 injury frequency rate in 1947 to 10.51 in 1954.

This encouraging report was submitted by R. N. Papich, safety consultant, American Gas Association, at the 7th Annual Conference of the Accident Prevention Committee of A.G.A. which was held in conjunction with the meeting of the Accident Prevention Committee of the Southern Gas Association, at Little Rock, Arkansas, September 14-15, 1955.

Mr. Papich went on to point out that about 35 per cent of the gas companies are responsible for nearly 75 per cent of all the industry's accidents, and that the industry should work to improve its position in the industrial accident prevention picture of the nation as a whole, since the relative rankings issued by the National Safety Council still did not present the gas industry in too good a light.

About 100 safety executives from the gas industry and allied industries attended the two day conference.

Northern States Power to Expand Facilities

NORTHERN States Power Company, Minneapolis, Minn., has re-

(Continued on page 44)

ACT NOW AUTHORIZE THE TRIED AND PROVEN HEATH "W" TYPE LEAKAGE CONTROL SURVEY-

Developed Specifically for
Commercial and Industrial Areas

WRITE, WIRE OR PHONE

HEATH

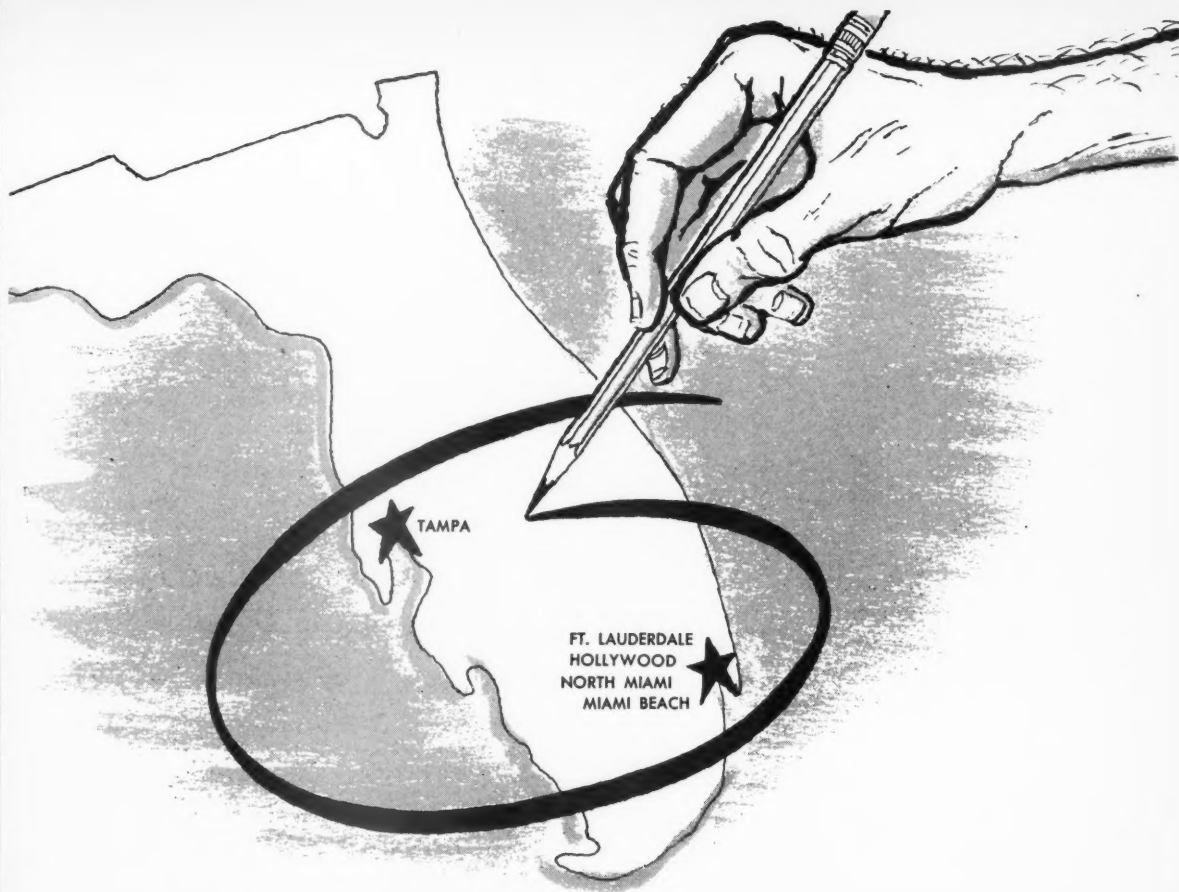
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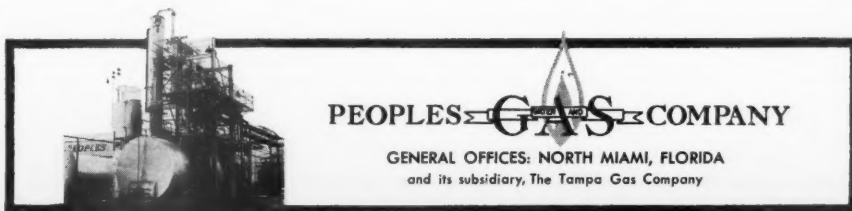
KEEPING PACE WITH FLORIDA!

"PEOPLE'S GAS" NOW SERVES BOTH EAST AND WEST COASTS

"People's," the State's largest gas utility, welcomes the opportunity to serve the residential, commercial and industrial needs of Florida's fast growing communities. Almost \$6,000,000.00 has been invested during the recent past in modernization by the People's Water & Gas Co. along Florida's Gold Coast. Millions in improvements are planned for People's subsidi-

ary, the Tampa Gas Co., serving Florida's thriving West Coast. This great integrated system with the nation's most modern facilities covers a service area population of 1.5 millions, with an annual distribution of over 2.5 billion cubic feet of gas.

Whatever your fuel needs in Florida are, People's Gas wants to remind you that *gas does the job best!*



INDUSTRIAL PROGRESS—(Continued)

ceived Federal Power Commission authorization to issue promissory notes not exceeding an aggregate \$25,000,000 face value at any one time outstanding.

Northern States which serves 380 communities in Minnesota, North Dakota, and South Dakota, plans an estimated \$11,420,000 in additions and improvements to natural gas facilities; \$3,324,000 in additions and improvements to general plant and equipment, with the balance going towards improvements and additions to electric facilities.

Motorola Names Manager and Sales Managers for New Department

CONSOLIDATION of Motorola's Microwave and Power Utility Prod-

ucts Departments has been announced by Daniel E. Noble, vice president of the Communications and Electronics Division. Robert F. Schulz has been made manager of the new department which will be called the Microwave and Industrial Products Department. Commercial sales activities will be directed by Leonard G. Walker; James Stewart will be in charge of export and special accounts sales.

Since joining Motorola in 1953, Mr. Schulz has directed the engineering, production and sale of the Motorola line of microwave equipment, which includes message circuit, monochrome and color TV relay, and radar relay equipment. His 25 years of previous experience in the electronic industry include 13 years in various positions in the broadcast industry, three years as a consulting

radio engineer and nine years as Supervising Engineer and Deputy Director for Airborne Instruments Laboratory.

Prior to his new assignment, Mr. Walker was product manager for Power Utility Products, with responsibility for power line carrier, voice frequency carrier, supervisory control, power line coupling networks, and related devices.

Before joining Motorola in 1951, Mr. Walker was electrical engineer for the Idaho Power Company in Boise. While there, he revamped the utility's transformer maintenance program, developed a system of automatic control of sub-stations and guided design and installation of extensive control equipment by Idaho Power.

(Continued on page 46)

*This announcement is not an offer to sell or a solicitation of an offer to buy these securities.
The offering is made only by the Prospectus.*

\$40,000,000

The Columbia Gas System, Inc.

3½% Debentures, Series E Due 1980

Dated September 1, 1955

Due September 1, 1980

Price 100% and accrued interest

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September 22, 1955

Some new "records" in West-Central Ohio!

These are the records that Dayton Power and Light Company's gas division will set this year. During 1955 our gas customers will increase in number by 7%. And by year's end, we will have installed 150 miles of new distribution mains. (*In addition, we've added 50 miles through purchase of The Lake Gas Co.)

Records like these are music to our ears!

The Dayton Power and Light Company

25 North Main Street • Dayton 2, Ohio



OVER 200 MILES* OF
GAS DISTRIBUTION
MAINS ADDED



OVER 11,000 NEW
CUSTOMERS
ADDED

El Paso Natural Gas Plans \$2,225,000 Construction Program

EL PASO Natural Gas Company, El Paso, Tex., has been granted temporary authority by the Federal Power Commission to construct and operate natural gas facilities estimated to cost \$2,225,000. The new facilities would enable El Paso to purchase approximately 60,000,000 cubic feet of residue natural gas per day from the Texas Hydrocarbon Company.

Concurrent with the El Paso authorization, the FPC granted Texas Hydrocarbon authority to deliver and sell the gas to El Paso. Both authorizations are without prejudice to such final disposition as the record may require, the FPC stated.

El Paso's construction would include:

Approximately 61.6 miles of 14 in. pipeline extending from the Texas Hydrocarbon Jameson Plant, Coke County, Tex., to El Paso's Tex-Harvey compressor station Midland County, Tex.; an additional 880 horsepower compressor unit with necessary appurtenances at the Tex-Harvey Station; and a purchase meter and check meter stations.

It's "Old Stove Round-Up Time!"

It's "Old Stove Round-Up Time" again and the gas industry has put out the Welcome Mat, enjoying its role of "The Host with the Most" to millions of Americans from coast to coast.

Just what its name implies, the Old Stove Round-Up campaign is designed to round up old obsolete model stoves and replace them with the latest model gas ranges.

A PAR activity of the American Gas Association with the cooperation of the Gas Appliance Manufacturers Association, the campaign will run for three months, September through November, the peak season for selling home appliances.

The gas industry estimates that a total of 2,000,000 gas ranges will be sold this year. For the first seven months of 1955, gas range sales hit 1,272,100, an increase of 13.3 per cent over the same period last year, representing \$120,000,000 in factory billings.

Ruud Offers Self-Mailer On Gas Water Heaters

A self-mailer for gas companies, plumbing contractors, and LP-gas distributors to acquaint their custom-

ers with the restaurant uses of the Ruud-Monel two-temperature Sanimaster automatic gas water heater is available from Ruud Mfg. Co., Kalamazoo, Michigan.

Form 981 is prepared for both large and small restaurant operators. It sets forth the money-saving advantages of the Sanimaster in providing hot water for all types of automatic dishwashers. From the same tank, new literature points out, this storage water heater delivers full flow rate at 180 degrees for the dish-rinsing and 140-degree water for general use.

New York State Natural Gas Plans Expansion

NEW YORK State Natural Gas Corporation, Pittsburgh, Penn., has received Federal Power Commission temporary authority to replace 12 miles of pipe line and install an additional 2,000 horsepower engine at its Tioga County, Pa., Boom compressor station.

Estimated total cost is \$1,823,000.

Peterson Named to New Post At M-H Division

C. L. Peterson has been appointed vice president and general manager of the Brown Instruments Division, Minneapolis - Honeywell Regulator Company, it was announced recently by Henry F. Dever, president. Mr. Peterson had formerly been divisional vice president.

Mr. Peterson will be responsible for the direction and co-ordination of operations in all departments of the Division, Mr. Dever said.

FPC Issues Revised Edition Of Map of Major Gas Pipe Lines In U. S.

The Federal Power Commission recently announced issuance of a June 30, 1955, revision of its map of "Major Natural Gas Pipe Lines" in the United States. The new map supersedes the December 31, 1954, edition.

The map is approximately 14 by 20 inches in size with a scale of 170 miles per inch. It is printed in five colors and shows major existing pipelines, those under construction, those which have been authorized and not yet started, and proposed lines which are pending Commission action.

Each pipeline is numbered to refer to an index of operating companies listed at the bottom of the map. Existing or proposed pipeline systems of 115 companies are represented. In ad-

dition to pipelines, the map shows the location of natural gas fields, indicating both major sources and generalized areas of supply.

Copies of this map may be purchased from the Federal Power Commission, Washington 25, D. C., at 25 cents each. Order number is FPC M-44.

Natural Gas Consumption Increases Twelve Fold

NATURAL gas has become the fastest growing primary fuel in North America, according to a recent report from H. C. Barten, manager of Worthington Corporation's Gas Transmission Section of Engine Sales Division. Mr. Barten stated that a recent survey conducted for his company showed that consumption of natural gas has increased from 500 billion cubic feet in 1920, to more than 6,000 billion in 1950.

According to the report, well over 20,000,000 people in the United States rely solely upon natural gas for heating and cooking purposes. In addition, upwards of 2,000,000 industrial firms are using gas as a major source of energy in their manufacturing operations.

According to Mr. Barten, the gas industry has had a phenomenal growth since World War II, with an average of 15,000 miles of gas pipeline laid each year. Today, the industry has become the largest single source of business for the stationary engine manufacturing industry.

Commenting on Worthington's part in this expanding industry, Mr. Barten explained that his company furnishes vital equipment including centrifugal compressors, angle type gas engine compressor units for pipeline, gathering and repressuring service, power engines for driving centrifugal and reciprocating compressors, and related accessory equipment.

New Sealant Offered by Harbinson and Company

James K. Harbinson and Company, Inc., 788 Seneca street, Buffalo 10, New York, reports that it has developed a sealant for OEM and Maintenance Service, for sealing pipe threads and gaskets on gas pressure lines, meters, diaphragms, etc. According to the announcement, the sealant has good metal adhesion qualities at temperature levels ranging from 50 degrees below to 622 degrees above

(Continued on page 48)

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The 0260—300 pound Bronze Gate Valve—is a typical valve, a typical value.



TWO-PIECE UNION BONNET

Strength, quick easy disassembly, no sliding or scraping of seat between body and bonnet.

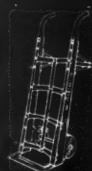
RADIAL SEAT OF UNION BONNET

Leakproof body-bonnet joint, rigid alignment.

SOLID NICKEL ALLOY WEDGE

guided for tight closure, corrosion resistant,

Fig. 0260 BRONZE GATE VALVE—
NON RISING STEM
300 lbs. steam working pressure at 350°F.
(0264—BRONZE GATE VALVE—RISING STEM)



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COMPANY

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zero, yet natural gas will not dry out or harden this material. The company claims there is no condition that cannot be safely controlled with Harbinson's Natural Gas Sealant.

This product, approved by Underwriters Laboratories, Inc., is recommended for use for transmission lines and gas compressor stations working under high pressure and subject to vibration, and for all petroleum liquids and gas services.

Washington Gas Light to Construct \$2,000,000 Natural Gas Pipeline

WASHINGTON Gas Light Company, of Washington, D. C., plans to construct approximately 11 miles of 24-inch natural gas pipeline and a river-crossing of the Anacostia River in the District of Columbia and Prince Georges County, Md. Total estimated cost of the project is \$2,000,000.

Range Shipments Set New Mark

A TOTAL of 1,512,900 domestic gas ranges were shipped to distributors and dealers during the first eight months of the year, a 16.2 per cent increase over the 1,302,500 shipped in the same period in 1954, according to Edward R. Martin, director of marketing and statistics of the Gas Appliance Manufacturers Association.

Mr. Martin's statistics are based on a telegraphic survey conducted among GAMA's domestic gas range division members and expanded to represent the entire industry.

Servel Names A. J. DeFino to Top Position in Air Conditioning

Appointment of Anthony J. DeFino, of Buffalo, N. Y., to the top position in the air conditioning division of Servel, Inc., Evansville, Indiana, was announced recently by Duncan C. Menzies, president.

As vice president and general manager of the autonomous air conditioning division, Mr. DeFino will be in charge of manufacturing, marketing, distribution, and customer service on Servel's "all-year" air conditioning equipment.

For the past six years DeFino has been vice president and general manager of Fedders-Quiggan Co., of Buffalo, manufacturers of room air conditioners, commercial refrigeration parts, automotive radiators and oil coolers, and cartridge cases.

Servel, a pioneer in the field of Cen-

tral-type "all-year" air conditioning, recently developed a direct-fired 3-ton heating-cooling unit, which is smaller in size and lighter in weight than previous 3-ton models. The company announced recently that 100 of the new units will be field-tested by cooperating gas utilities, and that the new model will probably be ready for mass production by the middle of 1956.

The cooling phase of Servel air conditioning equipment is a development of the "no-moving-parts" absorption principle first introduced in the company's gas refrigerator 30 years ago.

Gas Furnace Shipments at Record Highs

SHIPMENTS of gas-fired warm-air furnaces for the first eight months of the year now exceed the total annual shipments for any year before 1954, according to the Gas Appliance Manufacturers Association.

Edward R. Martin, GAMA's director of marketing and statistics, reported that a new monthly record was set during August with shipments to dealers and distributors of 104,100 units, an increase of 38.2 per cent over the same month last year. Shipments for the first eight months of the year were 517,000 units, an increase of 35.9 per cent over 1954.

Mr. Martin said that 12,700 gas-fired boilers were shipped during August, an increase of 30.9 per cent over the same month last year. During the first eight months of the year, 49,500 units were shipped for an 11 per cent increase over the same period in 1954.

He added that gas conversion burner shipments remained low, with 24,300 units shipped in August, a decrease of 17.3 per cent from the same month last year.

The estimates are based on a telegraphic survey of GAMA's house heating manufacturers and expanded to represent the entire industry.

Ruud Aids Utilities in Setting Up Home Laundry Programs

TO help gas utility home service directors set up new home laundry programs, or revitalize existing programs, two nationally-known home economists have become affiliated with Ruud Manufacturing Company, Kalamazoo, Mich.

They are Mrs. Irene Goodhue Leck, former national home service director for the Maytag Co., Newton, Iowa, and Mrs. Mary Dougherty Rockwell,

who held the same position with the Thor Corp., Chicago.

"Devoting their work to furthering the aims of the AGA New Freedom Gas Laundry Program, Mrs. Leck and Mrs. Rockwell will render a valuable assist to Ruud's own work in this important field," according to F. A. McFerran, general sales manager for the manufacturer of automatic gas water heaters. Mr. McFerran, to whom the home economists will report, pointed out that Ruud has developed a new home service file containing many home laundry campaign aids.

GAMA Elects Six Members

SIX companies have been elected members of the Gas Appliance Manufacturers Association, according to H. Leigh Whitelaw, managing director of the association.

This brings the total membership to 589 companies. GAMA's members make more than 95 per cent of all the gas appliances manufactured in the U. S.

The newly elected members are:

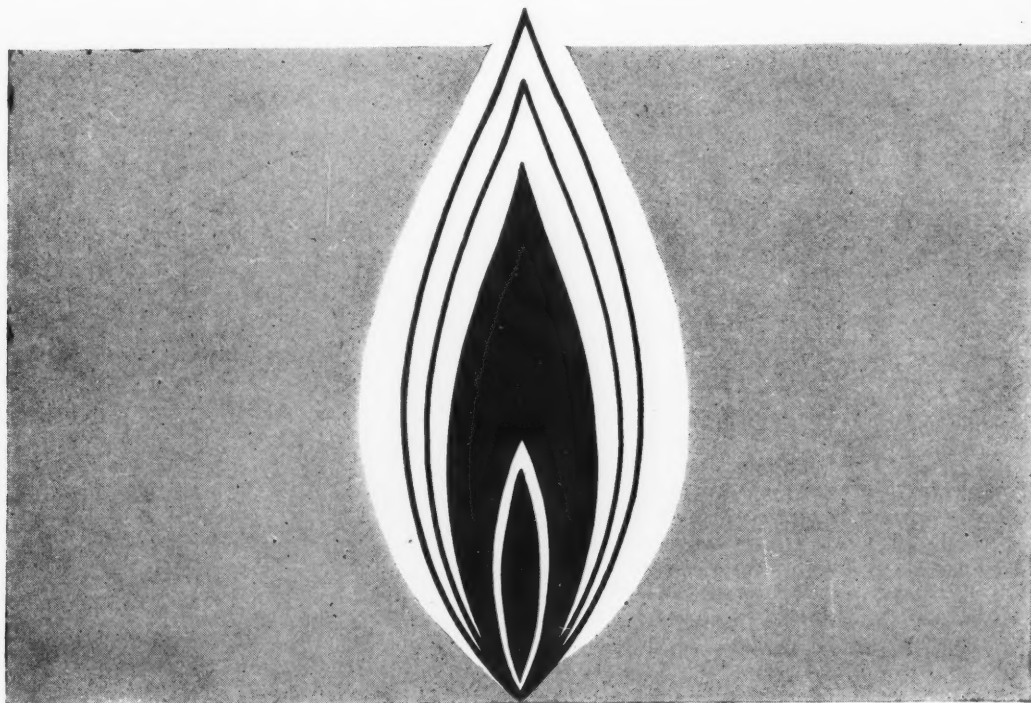
Edgewood Manufacturing Company of Baldwin Park, Cal., maker of circulating gas water heaters; Webster Valve Company of West Franklin, N. H., manufacturer of pressure and temperature relief valves; Star Metal Manufacturing Company, Inc. of Philadelphia, maker of gas hot food serving tables and gas coffee urn equipment; American Kitchen Division of the AVCO Manufacturing Corp., Connersville, Ind., manufacturer of kitchen cabinets, dishwashers and vent fans; Steven Manufacturing Corp. of Nashville, Tenn., maker of domestic cooking appliances; and Wheelco Instruments Division of Barber-Colman Company of Rockford, Ill., manufacturer of combustion safeguards.

Portable Gas Detector

A REDUCED-SIZE, light-weight portable detector for combustible gas explorations is described in a new leaflet, Form G-755, issued by Johnson-Williams, Palo Alto, California.

Discussed in this literature are two new features of convenience and advantage, including an automatic shut-off to minimize battery drain, and a sample-drawing system designed to minimize operator fatigue. Illustrated in use, the unit is described with numerous of the accessories which are available for special requirements. A price list covers complete instruments and auxiliary units.

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HOME BUILDERS

In many of the vibrantly expanding residential areas of New Jersey, new Blue Flame homes are being built.

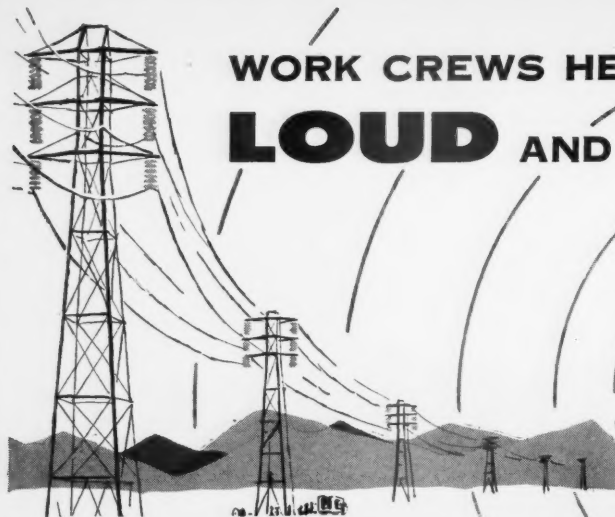
Public Service Electric and Gas Company has assumed leadership in this field of growth for the gas industry. We believe in the Blue Flame . . . and so do the architects and builders in New Jersey who have designed and constructed these wonderful new homes which utilize all seven uses of gas.

In the years to come, we believe that new and greater uses in the home will be found and developed for gas — the wonder fuel — that saves homeowners time, work and money!



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High noise level is no problem when your trucks carry the new "Big Voice" 2-way radio system. The weatherproof loudspeaker, mounted outside the truck cab, shouts with *10 times* the normal audio power to carry your message clearly hundreds of feet away. And there's no more need to waste a man on stand-by duty at the truck.

A bonus feature permits the foreman to use the "Big Voice" as a public address system, using the standard "Big Voice" mike when he's in the cab and the optional "Handie-Micro-Talkie" cordless mike when remote from the truck. The "Big Voice" radio, audio, and P.A. booster fit compactly inside Motorola's standard mobile housing. The outside speaker can be muted for normal radio use, of course.

When you buy your next 2-way radio, make it Motorola's "Big Voice" and get the extra benefits of this versatile unit. Send for complete descriptive literature today.



10 times more powerful than conventional units



Complete unit fits inside standard mobile housing



Switch from radio to P.A. and back with just a flip of a switch

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The only COMPLETE radio communications service—
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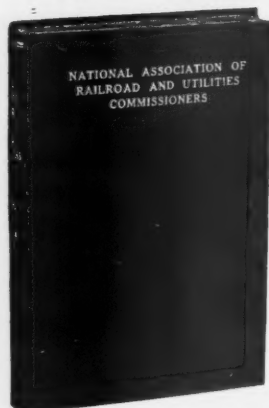
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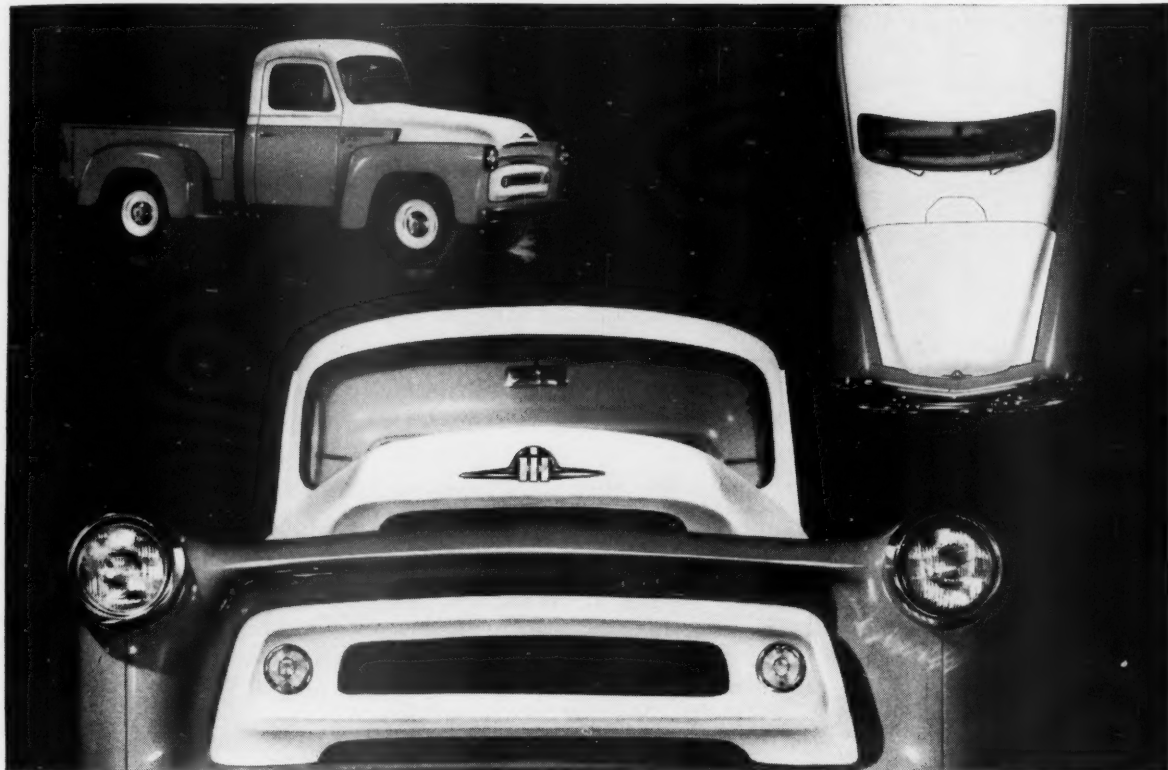
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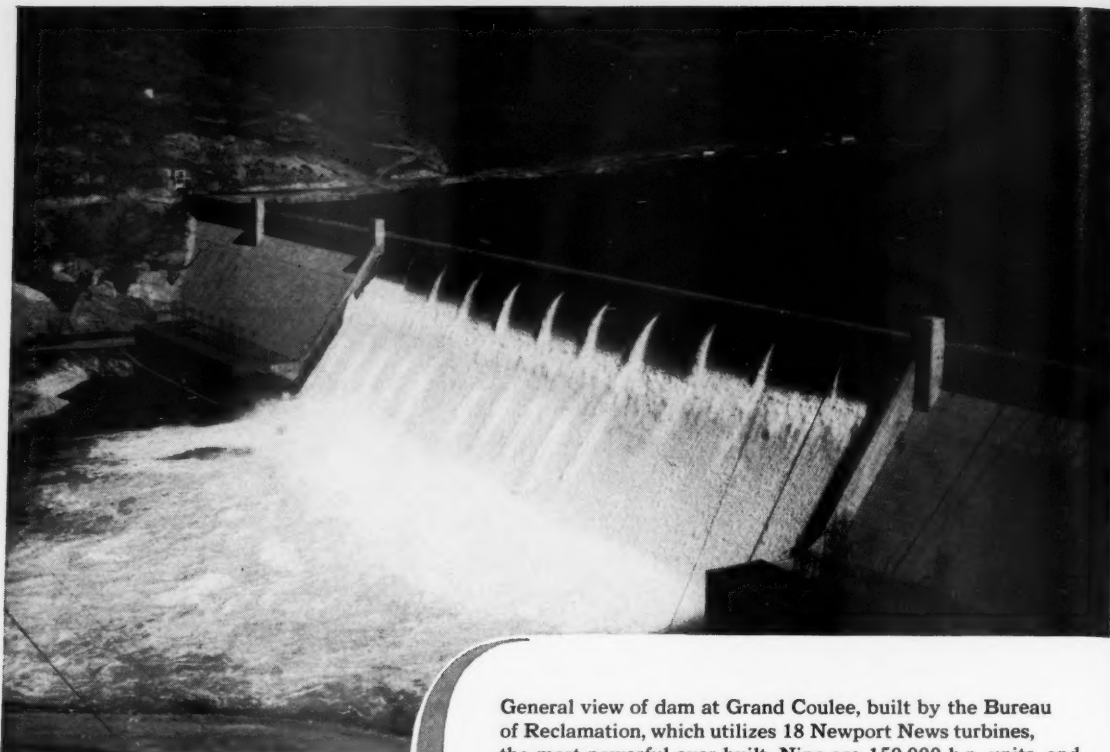
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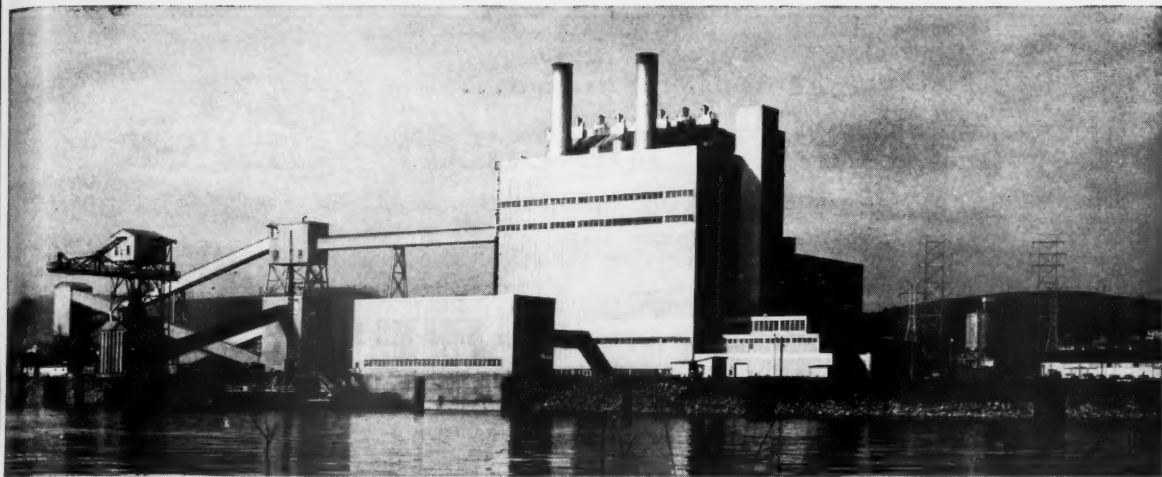
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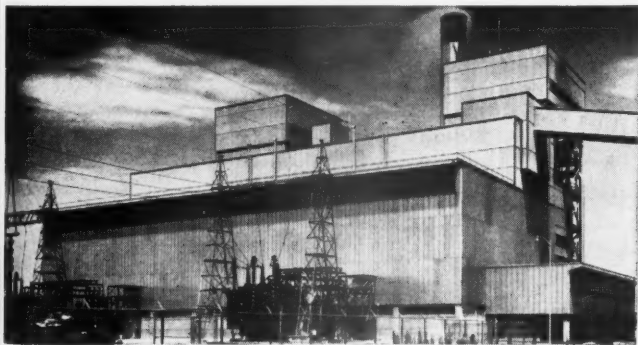
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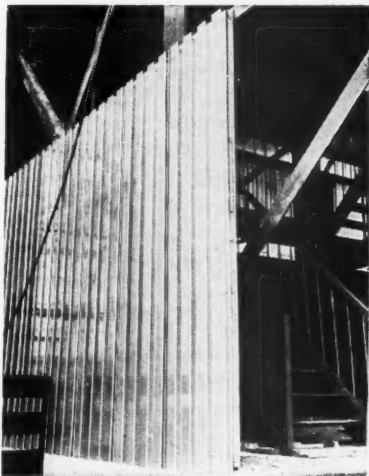
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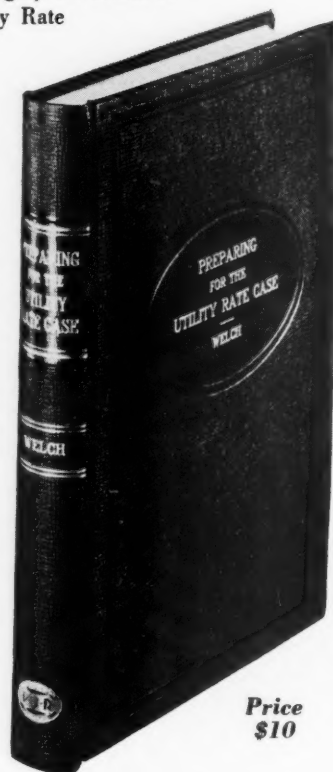
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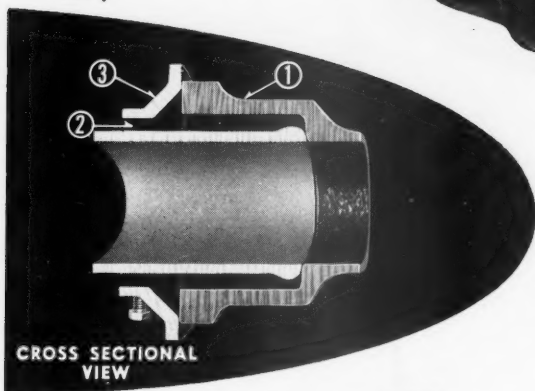
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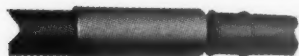
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